See Page 14

WHAT TO DO ABOUT HOT AIR

Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • MARCH, 1959 • 50¢
Published By Alfred M. Best Company, Inc.

This kind of style appeal sells foot safety!

new! black! Slipon-moc Safety Shoe

Stock No. 1651

One of America's best-selling dress and leisure designs makes a best-selling safety shoe, too! It has STYLE APPEAL—strongest inducement you can offer for the man who resists safety shoes; an extra pair for the man who already wears them. Order a pair for display. It's a shoe that every man can use.

Lehigh
SAFETY SHOE COMPANY
Emmaus, Pa.

(For details, use Key # C-1 on card on page 1)

BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

MISCELLANEOUS

Motion Picture Equipment 340
Florman & Babb. Illustrated rental catalog covers a wide range of motion picture equipment and accessories which may prove useful in augmenting plant safety education planning. Information is included on cameras, recording and projecting equipment, dollies, lenses, mike booms and tripods, etc.

Safety Flooring 341
Products Div., The Globe Co. Colorful, well-illustrated booklet details the advantages of metal flooring which has been designed to provide an anti-skid surface and safe footing. Steel or aluminum treads can be used for stairs and landings, floors, work platforms and dockboards. Complete specifications are included.

LIGHTING & ELECTRICAL

Vaportight Lighting Fixtures 342
Stonco Lighting Fixture Co. A complete vaportight lighting fixture line is described and illustrated in a new 12-page catalog. Catalog includes specifications, outline drawings, application information, etc. on interchangeable, pendant type, ceiling and wall fixtures. Units feature molded die-castings and "air-conditioned" reflectors.

Snap Action & Mercury Switches 343
Micro Switch Div., Minneapolis-Honeywell Regulator Co. Revised catalog represents a complete line of precision, snap-action and mercury switches. Included is data on high-temperature, maintained-contact, explosion-proof, high capacity, proximity, oil-tight, environment-free and multicircuit types.

Emergency Lights 344
K-S Marine Products, Inc. Catalog introduces a line of battery powered, portable and fixed emergency lighting. Such equipment as sealed beam spotlights, floodlights, warning signal lights, truck beacons and flares is described.

Floodlight Catalog 345
Crouse-Hinds Co. Voluminous catalog offers valuable information on such topics as "How to Select Floodlights," "Mercury Vapor Floodlights" and "Hazardous Area Lighting." Catalog is attractively designed and features revamped page styling to provide adequate descriptive information and ordering instructions.

Emergency Lighting Equipment .. 346
Carpenter Mfg. Co. Attractively designed brochure spotlights a complete line of portable flood and searchlights, colored warning lights and automatic stand-by lights. Equipment is designed to protect life and property when current failure causes normal lighting facilities to go out. Units feature "spill-proof" batteries. Equipment meets requirements established by fire, police, industrial and civil defense authorities.

FIRE PROTECTION

Fire Extinguisher Check Chart .. 347
Buffalo Fire Appliance Corp. Booklet, in introducing a complete line of fire extinguishing equipment, highlights a convenient, easy to use, reference chart for various types of fire extinguishers. Chart details such factors as capacity, U.L. classification, extinguishing effect, stream range, discharge method, etc. Accessory equipment is also outlined.

Spark Arresters 348
Erickson Products Co. Data sheets describe spark arresters for internal combustion engines, types GS and C. Units may be applied to trailers, trucks, forklifts, tugs, loaders, engines, etc. to prevent the escape of fire-igniting sparks. Unit features its own cup collector for carbon deposits.

PERSONAL PROTECTION

Protective Clothing & Equipment 349
Safety Clothing & Equipment Co. 44-page booklet introduces the latest innovations in the famous "Gardwell" line of protective clothing. Equipment from gloves to knee pads is detailed. Construction features and safety factors are specified. The latest developments in the use of synthetic fabrics and coatings are highlighted and illustrated.

Guest-Goggles 350
Sellstrom Mfg. Co. Data sheet introduces a new plant-visitor goggle which has been designed to offer protection for people touring areas where semi-hazardous conditions exist. Glasses are styled to fit over prescription glasses and are available with clear or green plastic lenses.

Safety Shoe Catalog 351
Iron Age Div., H. Childs & Co., Inc. In-stock catalog describes and illustrates a complete line of safety shoes. All the shoes have been created with both safety and style in mind. Shoes are available for both men and women to protect against such hazards as chemicals and greasy and oil soaked floors, as well as featuring steel toes for impact protection.

Eye & Face Protection 352
United States Safety Service Co. Brochure describes a full line of eye and face goggles, spectacles and shields, etc. Introductory pages illustrate several behind-the-scenes

(Continued on the next page)

MAIL POSTAGE PAID CARD FOR MORE DATA

SPECIAL OFFER BELOW VALID ONLY FOR THREE MONTHS AFTER PUBLICATION DATE

READER'S INQUIRY CARD

HOW TO GET FREE DATA! **(No Postage Required)**

ADVERTISED PRODUCTS: Just insert the key number shown under each advertisement in the boxes below.
NEW PRODUCTS ("WHAT'S NEW" PAGES): Insert the key numbers shown on each item.
FREE BULLETINS & CATALOGS: Insert the key numbers shown on this page.
KEEPING UP WITH RECENT DEVELOPMENTS: Insert the key numbers shown on items in special feature article.

PLEASE PRINT YOUR NAME & ADDRESS

Name _____ Title _____

Company Name _____

Street Address _____

City _____ Zone _____ State _____

MARCH, 1959 **Please send me the following free data**

Free Bulletins (Cont'd)

shots of the various research steps necessary in developing an effective piece of eye protective equipment. Recommendations are also included to help develop an eye safety program.

Welding Accessories 353
The Fibre-Metal Products Co. Welding accessories from brushes to caps, goggles, helmets and weld probes are featured in an interesting new booklet. Headgear of both vulcanized fiber-glass and aluminum is described as well as a system for obtaining needed replacement parts for used equipment. Of special interest is a section devoted to newly designed safety masks which reduce heat radiation without loss of ventilation.

FIRST AID & HYGIENE

Silicone Ointment 354
Arner-Stone Laboratories, Inc. Data sheet gives important facts about skin protective ointments and liquid sprays. Ointment may be used in the relief of contact dermatitis, fissures and burned skin, etc. Preparation compounds silicones in a white petrolatum base to offer protection against water and other external irritants.

Stretchers 355
Geo. H. Holzbog Co. Prospectus diagrams light weight stretchess with wood and aluminum parts. The units conform to U. S. Army medical department patterns. Stretchers are available for use in mines, railroad systems and industrial plants, etc.

Dust & Fume Exhaust Systems .. 356
Ammerman Co., Inc. Specification sheets illustrate flexible exhaust systems for industrial plants and vehicle maintenance shops, etc. Systems will remove diesel smoke, carbon monoxide, welding and soldering fumes, etc. Underfloor and overhead types are available, the flexible ducts permitting movement to specific locations as required.

Skin Protection 357
The Chemical Corp. Brochure illustrates a line of skin cleaners and protective creams, etc. Brochure also introduces a new "work lotion" with lanolin, silicones, emollients and camphor which has been formulated for the relief of dry, chapped skin.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
116	Ice Grippers
117	Safety Shoes
118	Safety Boots
	FIRST AID AND HYGIENE
122	Sanitary Drinking Facilities
123	Wash-up Facilities
124	Salt Tablets
125	Resuscitators
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
135	Hearing Protectors
	FIRE PROTECTION
142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
145	Drum Safety Valve
146	Welding Curtains
148	Watchmen's Control Systems
149	Extinguishing Ash Trays
	LIGHTING AND WARNING DEVICES
150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
155	Highway Emergency Flasher
	MAINTENANCE
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Materials
165	Paints
168	Bird Control Devices
169	Toilet Sanitizers
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
177	Carboy Pumps
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
	EDUCATIONAL AIDS
191	Safety Signs
193	Employee Safety Guide
195	Changeable Letter Signs

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT NO. 6634, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

"SAFETY MAINTENANCE"
ALFRED M. BEST COMPANY, INC.
75 FULTON STREET
NEW YORK 38, N. Y.

Service Dept.

READER'S FREE INQUIRY CARD

for further data on ADVERTISED PRODUCTS, NEW PRODUCTS, FREE BULLETINS & CATALOGS

WHAT'S YOUR PROBLEM?

Publisher
ARTHUR SNYDER

Editor
HARRY De G. ARMAND

Associate Editor
RALPH P. EAMES

Make-up Editor
ROLLIN P. SILVER

New Products Editor
ALAN W. EINERSEN

Managing Editor
CHESTER M. KELLOGG

BUSINESS DEPARTMENT

General Sales Manager
FRANK R. WALDRON

Sales Manager
JAMES E. BEHNER

Assistant Sales Manager
ELDOR C. KRISAK

Circulation Manager
ARTHUR E. McGEEHAN

Production Manager
FLOYD J. MATOS

Publication Office:
Columbia Turnpike, Rensselaer, N. Y.
Editorial and Advertising Offices:
BEST Building, 75 Fulton St., New York 38, N. Y.

NATIONWIDE BRANCHES

WESTERN
FRANK J. MATRE, Res. V. P.
W. LAWRENCE HOWE, Spec. Repr.
DONALD W. SETHRE, Spec. Repr.
10 South La Salle Street
CHICAGO 3, ILL.

EAST CENTRAL
PAYSON H. RYAN, Vice-President
FELIX T. McCARTHY, JR., Spec. Repr.
Ingalls Building, 6 E. 4th St.
CINCINNATI 2, OHIO

NEW ENGLAND
WALTER A. SPANGLER, Res. V. P.
13 Stanhope Street
BOSTON 16, MASS.

EASTERN
ROLAND H. BURCHSTEAD, Spec. Repr.
ARTHUR A. EBERLE, Spec. Repr.
JOHN A. ELLISON, Spec. Repr.
RICHARD B. WILLIAMS, Spec. Repr.
75 Fulton St., New York 38, N. Y.

MIDDLE ATLANTIC
HOWARD J. ADER, Res. V. P.
1208 Nelson Street
RICHMOND 26, VA.

SOUTHERN
JOSEPH O. BERRY, Spec. Repr.
2094 Myrtle Lane
ATLANTA, GEORGIA

SOUTH CENTRAL
GENE HANSELMANN, Manager
151 Lynda Drive
CHATTANOOGA 5, TENN.

SOUTHWESTERN
ROBERT S. BEGIEN, Res. V. P.
JAMES G. BRECUNIER, Spec. Repr.
826 Gibraltar Life Bldg.
DALLAS, TEXAS

PACIFIC COAST
HAROLD F. KANE, Res. V. P.
1150 Wilshire Blvd.
LOS ANGELES 17, CAL.

PRINTED IN U.S.A.

Copyright 1959
Alfred M. Best Company, Inc.
75 Fulton St., New York 38, N. Y.

Trademark Registered—U. S. Patent Office

U. S. and Canadian $4 (two years $6)
Foreign $5 (two years $8)
Single issues 50¢. Also quantity rates

Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 117, Number 3 **March, 1959**

EDITORIAL

Save Their Skin 4

ACCIDENT PREVENTION

Safety Is the Key to Profits by CHARLES E. BUSLER 11
The Development of a Respirator for Abnormal Temperatures (respiratory protection series) by Dr. WILLEM S. FREDERIK 14
Radioactive Fallout Alarm Plugs Into Radio 17
Taming the Whoosh of a Missile Fuel 26
Safety Equipment for Handling Benzyl Chloride 41
Keeping Up With Materials Handling Developments (materials handling series) 50
New Accident Prevention Bulletins 1
New Accident Prevention Products 63

MAINTENANCE

Plant Maintenance & Engineering Show 18
How Poor Maintenance Ruins Asphalt Tile 21
New Maintenance Bulletins 1
New Maintenance Products 63

INDUSTRIAL HYGIENE

Industrial Hygiene News 31
Inside a Modern Medical Facility 32
What To Do About Dermatitis (skin protection series) 34
Safety Equipment for Handling Benzyl Chloride 41
New Industrial Hygiene Bulletins 1
New Industrial Hygiene Products 63

FIRE PROTECTION

The Fire Front 45
Give Vents to Flammable Liquid Tanks 46
New Paint Forms a Fire-Protective Mat 49
New Fire Protection Bulletins 1
New Fire Protection Products 63

SPECIAL DEPARTMENTS

Bulletins & Catalogs 1
Reader's Free Inquiry Card 1
What's Your Problem? 2
The Future Shows 8
Production Aids Check List 9
Another Accident Checked 22
"Safety Maintenance" Salutes 24
What's the Law? 29
Achievements & Awards 43
Installations & Applications 60
Inside the Trade 61
What's New for March 63
Index to Advertisers 68

Cover picture by courtesy of American Optical Co.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

Published monthly by Alfred M. Best Company, Inc. Publication Office, Columbia Turnpike, Box 232, Rensselaer, N. Y. Editorial and General Offices, Best Building, 75 Fulton Street, New York 38, N. Y. Second-Class Postage paid at Rensselaer, N. Y. Subscription rates: $4.00 Per Year in the United States; $4.00 in Canada; Foreign $5.00. Single Copies, 50 cents.

Postmaster: please send change-of-address notices to: Safety Maintenance, Best Building, 75 Fulton Street, New York 38, N. Y.

 ENTIRE CONTENTS COPYRIGHT, 1959, BY ALFRED M. BEST COMPANY, INC. ALL RIGHTS RESERVED

it's SAFE to say

• SAVE THEIR SKIN

Too many industrial leaders and officials charged with the responsibility for employee welfare seem to think that dermatitis is some mysterious new disease which has cropped up recently and is confined to very technical jobs. It is our firm conviction that industrial dermatitis—or to make it simpler—inflammation of the skin usually is just another name for DIRT!

According to the most conservative estimates, industrial dermatitis is responsible for fully 75 percent of all diseases in industry. Its cost is not less than one hundred fifty millions each year and that is a terrific price to pay for any itch!

To prevent this increasingly costly skin trouble in all lines of industry, we must start with the far too prevalent improper measures of personal hygiene and, in many cases, faulty supervision over any form of personal cleanliness.

If management merely passes out some form of makeshift skin cream without any form of supervision, we run the risk of increasing rather than preventing skin troubles. If a cream is used without proper washing facilities, we merely "seal in" the dirt and invite inflammation.

The present system of selecting scientifically compounded products and faulty supervision leaves much to be desired. Nine times out of ten, the man who "selects" the product never has occasion himself to use it. Small wonder that dermatitis is on the upgrade when we attempt to cope with the problem of hygiene by buying a poor skin cleanser on the basis of price alone or leave this vitally important task of selection to the buyer of janitor's supplies.

There may be in the plant a tough maintenance problem for certain employees. Is that any reason to purchase a harshly alkaline product for **all** employees? In other words, are we to say "never mind the skin of the rest of the employees"? We don't buy steel or parts in that indifferent, non-selective manner. Is the skin of the worker any less valuable than machinery?

Skin cleansers to prevent costly dermatitis are not items of janitors' supplies. There is a definite connection with general hygiene in which the most professional advice is indicated.

Each job must be evaluated to see what possible effect, if any, it may have on the human skin. Then the factor of prevention becomes the problem of the safety director or top management, after which the obligation to proper selection of skin products is mandatory.

Harsh detergents or excessively alkaline products may appear to clean the skin. Makeshift creams may give a false sense of security. One look at before-and-after pictures showing skin diseases should be sufficient to convince operating officials that the hapless industrial victim is the loser in this dangerous and costly skin game.

Just as we do in the case of goggles, protective footwear and safety clothing, it is simply a case of fitting the proper product to the required job and observing the rules for scrupulous cleanliness. Naturally, there are factors of personal allergies or skin sensitivity which must be considered. Then, transferring the worker to another job will help to save his skin.

SAFETY GOGGLES | SAFETY SPECTACLES

FORM FITTING COMFORTABLE

WATCHEMOKET eye SAVERS

LIGHTWEIGHT EASY TO WEAR

Model 440SV Methacrylate Lens
Model 441SV Acetate Lens

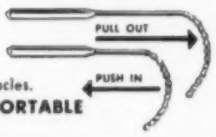
Soft Vinyl Frame

"Stac-Vent" — a new principle in goggle ventilation.
Clearer Vision . . . More Comfort . . Greater Safety.
Large frame fits comfortably over all prescription glasses.
Lenses optically correct — shatterproof — easily replaced.
Also available with regular or screen ventilation.

Model 415

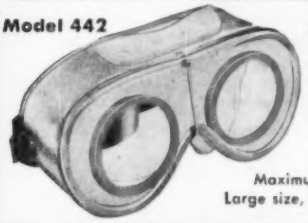
Tuc-Away

Shatterproof, optically correct lenses.
Easily replaced . . . snap-in, snap-out.
In clear, light, medium or dark green.
One size and model fits every worker.
Wearer adjusts and maintains his own spectacles.



WORN BECAUSE THEY ARE COMFORTABLE

Model 442



Soft Vinyl Frame 50 mm Round Hardened Safety Glass Lenses

Maximum protection where there is extreme abrasion.
Maximum comfort and minimum weight.
Large size, fits over all prescription glasses.

Visor-Tuc

Model 422

New Over-Eyes Protection

Almost 100% protection, plus all the comfort of "Tuc-Away" "Visor-Tuc" fits snugly against the forehead. Shatterproof Eye Savers lenses interchangeable in Tuc-Away Model.

Model 492

Welding Goggle Opaque Black Soft Vinyl Frame

Furnished with replaceable 50 mm round, Federal Specification, filter lens shades 3, 4, 5 or 6, protected inside and out by cover lenses.

Split Joint

Model 80

Split Joint Frame makes changing lenses a simple operation, no heating to distort frame. Retrax temple easily adjusted — One size Standard 47 mm drop eye lenses. Removable clip-on side shields available.

Quick, easy replacement of:
PLASTIC SAFETY LENSES
PRESCRIPTION LENSES
PLANO SAFETY GLASS LENSES

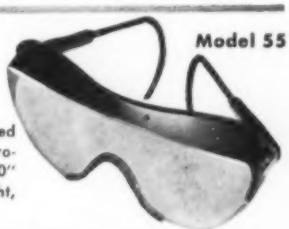
Model 99

Cheepee One-Piece Goggles

Close fitting, lightweight, comfortable.
Optically correct . . . no distortion.
Available in clear or medium green.

Methaspec Eye Shield

Model 55



Optically correct, one piece, curved Methacrylate Eye Savers Lens provides impact protection. Lens is .080" thick, available in clear or light, medium and dark green.

For details, see your Authorized Eye Savers Supplier or write direct

Quality Eye Protective Equipment ***Made by the Leaders in Plastics***

WATCHEMOKET OPTICAL CO., INC.

232 West Exchange St., Providence 3, R. I. • In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26, Winnipeg

(For details, use Key # C-2 on card on page 11)

IMMEDIATE DELIVERY...

The Only Work

ON—THE—SPOT EXPERT ANSWERS

to problems like these:

- **What is the right eye protective device for each hazard . . . when should it be worn . . . how can you select for best results and greater economy? (Did you know there are more than 45 different types of goggles, each one designed for a different hazard and use?)**
- **What are the safety and maintenance factors of specific paints . . . the importance of the Color Code and where to use red, green, white, orange and even purple . . . who specializes in such paints?**
- **What are the most economical types of materials handling equipment for you?**
- **What is the importance of a uniform code for safety signs and signals . . . where can you find materials which will fit a planned program?**
- **What are the essentials for hand soaps and cleansers to protect the skin . . . the types of protective creams to prevent skin rash?**
- **What are the various types of electrical equipment approved by the Underwriters' Laboratories for specific conditions of hazardous gases, vapors and dusts . . . who makes them?**
- **What are the vapor hazards of flammable liquids . . . what fire prevention containers and equipment will do exactly the right job?**
- **What is the range of protective clothing, such as 70 different types of protective gloves . . . the specific merits and uses of each one—which is the very best for you?**
- **What can you save in time, money and production by selecting the right ladder for an operation?**
- **When will awards and placques speed up production?**

These are just a few questions suggested by only a few pages of more than 600!

Quick as a flip of the wrist . . .

- **The specific use and description of over 3500 Safety and Maintenance devices and products in more than 600 pages!**
- **Profusely Illustrated with hundreds of specific drawings and photographs!**
- **Where to get it—names and addresses of over 3600 manufacturers!**
- **Complete cross-reference with convenient Index of Trade Names!**

THE ONLY WORK OF ITS KIND IN EXISTENCE

• COMPLETE • CONCISE
• ACCURATE • UNBIASED
• AUTHORITATIVE
• ILLUSTRATED

YOUR PRIVATE SAFETY RESEARCH STAFF FOR 2 FULL YEARS!

of its Kind in Existence!

WHAT–WHY–HOW–WHEN–WHERE

all in the new

1959 BEST'S

SAFETY-MAINTENANCE DIRECTORY

(7th Edition)

Your safety-maintenance answers *IN MERE SECONDS* . . . without rows of files, without hours of unrewarding research, without trial and error guesswork! BEST'S DIRECTORY gets you the answers to *ALL* your safety-maintenance problems—*TIME SAVING—MONEY SAVING* answers that can cut accident costs and insurance premiums, reduce replacement costs, increase production efficiency and keep your men on the job!

[illegible]

Best's Safety-Maintenance Directory is the only work of its kind in existence—the biggest, most comprehensive collection of safety product information yet offered the man responsible for accident control and production. It describes—*concisely, accurately* and *impartially* —all essential safety and maintenance products and equipment—*for all industry*—a manual, guide, encyclopedia and reference showing:

- **WHAT to use — and WHY**
- **WHEN to use it**
- **HOW to use it**
- **WHERE to get it**

[illegible]

With this self-contained DIRECTORY you can depend on its own vast fund of practical information for solving basic safety problems . . . meeting split-second critical emergencies . . . or for developing a comprehensive safety program precisely designed to meet your maximum safety requirements.

[illegible]

The nation's leading experts in their respective fields have actively collaborated to produce Best's Safety-Maintenance Directory.

All controversial products or material are screened and, where necessary, checked with such authorities as: U. S. Bureau of Standards, U. S. Labor Dept., U. S. Bureau of Mines, U. S. Public Health Service, Underwriters' Laboratories, Factory Mutual Laboratories, American Standards Assn., and many other reliable testing organizations.

[illegible]

[illegible]

A full staff is continuously sifting, ferreting out, and evaluating all the thousands of products new on the market. At the same time they've been checking all the standard equipment for up-to-the-minute usefulness. Best's Safety-Maintenance Directory BELONGS on the desk of every man who has an administrative responsibility for safety . . . it belongs in the hands of every one charged with the responsibility of operations, production, maintenance and reducing accidents, breakdowns, replacement delays and costs.

ORDER TODAY

edition limited to one printing

$7.50 per copy

TO: BEST'S SAFETY-MAINTENANCE DIRECTORY,
Alfred M. Best Company, Inc., 75 Fulton Street,
New York 38, N. Y.

Send_____copies of the 1959 SAFETY-MAINTENANCE DIRECTORY.
@ **7.50 per copy**

Name (Please Print) _____

Company _____

Street _____

City _____ Zone ____ State _____

Philadelphia, Pa. *March 4–5*

Twenty-Fifth Annual Regional Safety & Fire Conference and Exhibit (Bellevue-Stratford Hotel). Harry H. Verdier, Executive Director, Safety Council, Chamber of Commerce of Greater Philadelphia, 121 S. Broad St., Philadelphia 7, Pa.

Boston, Mass. *March 16–17*

Thirty-eighth Annual Massachusetts Safety Conference and Exhibit (Hotel Statler Hilton). Bruce Campbell, Manager, Massachusetts Safety Council, 54 Devonshire St., Boston 9, Mass.

Fort Wayne, Ind. *March 17–18*

Northeastern Indiana Safety Conference & Exhibit. Ivan A. Martin, Manager, Safety Council, Chamber of Commerce of Fort Wayne, Ft. Wayne 2, Ind.

Houston, Texas *March 22–25*

Twentieth Annual Texas Safety Conference and the Governor's Highway Safety Conference (Rice Hotel). J. O. Musick, General Manager, Texas Safety Association, 630 Littlefield Bldg., Austin, Tex.

Los Angeles, Calif. *March 23–25*

Sixth Annual Western Safety Congress & Exhibits (Ambassador Hotel). Greater Los Angeles Safety Council, 3388 W. 8th St., Los Angeles 5, Calif.

Cleveland, Ohio *April 5–10*

Nuclear Congress and Atom Fair (Public Auditorium) sponsored by International Atomic Exposition, Inc., Architects Bldg., Philadelphia 3, Pa.

Berkeley, Calif. *April 7–8*

Seventh Annual Eastbay Public Safety Congress (Hotel Claremont). Eastbay Chapter National Safety Council, 1322 Webster St., Oakland 12, Calif.

Kansas City, Mo. *April 9–10*

Fourteenth Annual Central States Safety Congress (Hotel President & Municipal Auditorium). George M. Burns, Managing Director, Kansas City Safety Council, 419 Dwight Bldg., Kansas City 5, Mo.

New York, N. Y *April 13–17*

Twenty-ninth Annual Greater New York Safety Convention and Exposition (Hotel Statler). Greater New York Safety Council, Inc., 60 East 42nd St., New York 17, N. Y.

Syracuse, N. Y. *April 20–22*

Sixth Biennial Central New York Safety Conference and Exposition (Hotel Syracuse). Newell C. Townsend, Administrative Secretary, Central New York Chapter A.S.S.E., 351 S. Warren St., Syracuse 2, N. Y.

Indianapolis, Ind. *April 22–23*

Twelfth Central Indiana Safety Conference & Exhibit (Claypool Hotel). Indianapolis Safety Council, 320 N. Meridian St., Indianapolis, Ind.

East Lansing, Mich. *April 27–29*

Sixth National Conference on Campus Safety (Michigan State University). Norman V. Steere, Chairman, Department of Public Safety, Michigan State University, E. Lansing, Mich.

Columbus, Ohio *April 28–30*

Twenty-Ninth Annual All-Ohio Safety Congress and Exhibit (Deshler-Hilton Hotel). Arthur W. Moon, Congress Manager, Room 611, Ohio Departments Bldg., Columbus 15, Ohio.

Allentown, Bethlehem, Easton, Pa. *May 4–6*

Thirty-Second Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, Secretary-Treasurer, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Niagara Falls, N. Y. *May 5–7*

Nineteenth Western New York Safety Conference (Hotel Niagara). Clifford H. Seymour, Executive Secretary, Western New York Safety Conference, P. O. Box 315, Niagara Falls, N. Y.

Rochester, N. Y. *May 12–14*

1959 Genesee Valley Safety Conference & Exposition (Manger Hotel). Earl R. Wallace, Vice President, Genesee Valley Safety Conference, 55 St. Paul St., Rochester 4, N. Y.

Roanoke, Va. *May 18–20*

Virginia Safety Association Conference (Roanoke Hotel). James T. Wadkins, Mgr., Virginia Safety Association, 2051 Monument Ave., Richmond 20, Va.

Duluth, Minn. *May 21–22*

Thirty-fifth Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). Allen D. Look, Secretary, Lake Superior Mines Safety Council, 321 Federal Bldg., Duluth 2, Minn.

Gatlinburg, Tenn. *June 18–20*

Fourth Annual Meeting of the Health Physics Society. G. T. Saunders, Health Physics Society, c/o Kewaunee Mfg. Co., Adrian, Mich.

Chicago, Ill. *September 21–25*

Fourteenth Annual Instrument-Automation Conference & Exhibit. (International Amphitheatre). Fred J. Tabery, 3443 S. Hill St., Los Angeles 7, Calif.

CHECK LIST of aids to production

Through Safety—

High Temperature Respirator 14
Radioactive Fallout Alarm 17
Hard Hats 22
Evacuation Alarm 24
Safety Equipment 41
Pedal-Controlled Lift Truck 50
Corrosion Resistant Lift Truck 50
Canvas Tote Bags 51
Horizontal Plate Clamps 51
Drum Handling Attachment 51
Electro-Magnetic Shovel 51
Coil Handling Hook 51
Swing-Reach Truck 52
Plastic Rope 52
Drum Rotater & Dumper 52
Safety Stacker 52
Power Unit for Wheeled Devices 52
Air-Powered Hoist 53
Safety Lift-Truck 54
Crane-Truck 54
Fork-Lift Safety Lock 54
Winch & Hoist 54
Skid Tractor 55
New Electric Truck 55
Swing Boom Crane 55
Hydraulic Box Dumper 56
Hydro-Power Wheel 56
Elevating Power Dock 56
Pneumatic Gripper 56
New Fork Lift 56
Lift Truck Counterweight 56
Foam Rubber Nose Pads 63
Nylon Slings 63
Slip-On Safety Moccasin 63
Warning Device Tripod 64
Impregnated Work Gloves 64
Polyethylene Aspirator Pump 64
New Face Shield 64
Treated Leather Work Shoes 65
Guide Pin Covers 65
Neoprene Push-Button Station 65
Ripple Soled Safety Shoes 65
Heat Resistant Clothing 66
Grinding Wheel Dresser 66
Improved Earphone 66
Hazard Warning Light Stand 67
Neoprene Non-Slip Glove 67
Plastic Utility Bottle 67
Slip-Proof Treads 67

Through Maintenance—

Asphalt Tile Maintenance 21
Parts Cleaning Machine 60
New Aluminum Ladders 64
Water Repellent 64
Powered Steam Cleaner 66
Grinding Wheel Dresser 66
Wire Skinning Knife 66
Debris & Dirt Vacuum 67
Straddle Scaffold 67

Through Industrial Hygiene—

Medical Equipment 33
Dermatitis Control 34
Protective Creams 37
Skin Cleansers 37
New Dust Collector 64
New "Mercy" Dressing 65
Lead Vinyl Radiation Clothing 65
Portable Chair-Cot 66
Resuscitation-Suction Kit 66

Through Fire Protection—

Non-Electric Fire Alarm System 24
Flame-Arrester Vents 46
Sprinkler Systems 48
Fire Retardant Paint 49
Fork Truck for Hazardous Areas 54
Revolutionary Fire Extinguisher 63
Dry Powder Extinguisher 65

COOL BREATHING

IN HOT, SMOKY OR DUSTY AIR VAPORS, FUMES

DUPOR No. 20
Water Cooled
RESPIRATOR

Double sponge filters, saturated with water before wearing, give individualized air-conditioning unit that makes breathing safe for every worker. Paint shops, foundries, steel mills, chemical labs, oil refineries, etc. use and recommend this respirator, one of many proven DUPOR models. See your safety equipment supplier or order sample direct — $2.50 postpaid.

WRITE FOR LITERATURE ON OTHER MODELS

H. S. COVER
Dept. 309, South Bend 14, Ind.
"Respirators for Industry Since 1894"
(For details, use Key # C-3 on card on page 1)

new safety topping provides
NON-SLIP FLOOR SURFACE

A safety topping for making floors and steps non-slip is announced by The Monroe Company, Inc., Cleveland. Called X-L Veneer, the product contains a new type of abrasive filler and aggregate that is combined with synthetic, heavy bodied plastic base material and special solvents.

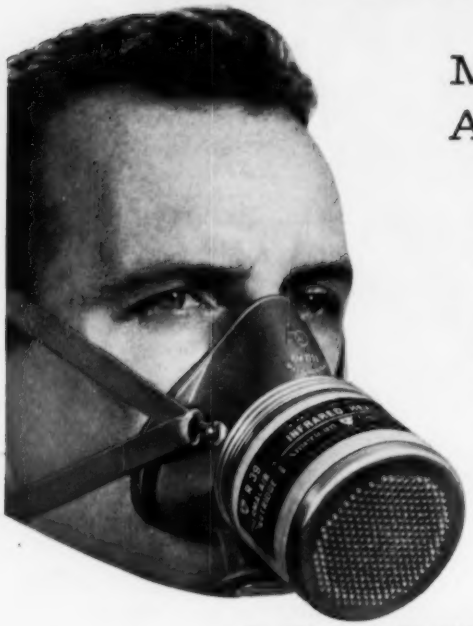
Applied on steps, inclines and floors, it forms a thin, tightly-bonded veneer that remains slip-resistant whether wet or dry . . . thus contributing greatly to accident prevention. Easily troweled on, just as it comes from the container (no primer needed), X-L Veneer can be used over concrete, wood, steel, tile or terrazzo surfaces, even over glass. Because it is impervious to oil and grease, it is especially recommended for use around machinery. It is also adaptable for covering steel floor plates. Other features are resistance to gasoline, alcohol, fats and chemicals used in cleaning compounds and insecticides. In addition, X-L Veneer is fire retardant.

Ideal applications include stairways, ramps, catwalks, aisles, shower rooms, lavatories, swimming pools . . . even areas subjected to heavy steel wheel trucking. It is used frequently on boat decks, tread areas of airplane wings, and catwalks and running boards of petroleum transport trucks. 4 attractive colors—red, green, light gray and dark gray.

For full details, request Bulletin C-46-5,
The Monroe Company, Inc.
10703 Quebec Ave., Cleveland 6, Ohio

(For details, use Key # C-4 on card on page 1)

NEW...AO Introduces "THERMALAIR"*



More than a NEW Respirator – A New IDEA in Respirators!

For Protection Against Excessive Heat meet the R-2039 Thermalair Respirator — newest in the line. It's equipped with a new R-39 heat exchanger cartridge to permit work in atmospheres considered too hot for endurance beyond a few seconds! Worker breathes in and heat is stored in the cartridge. Worker breathes out and the heat is removed from the cartridge. Reduces temperature of inhaled air to approximately 100°F. The Thermalair has already proved its capabilities on the job in many plants by reducing costly shut-down time for kilns and its performance in other hot atmospheres up to 300°F.

AO ALUMINIZED ASBESTOS CLOTHING

– for those Extra Hot Operations

These garments reflect 90% of radiant heat — weigh 50% less than regular asbestos — lower worker fatigue — increase efficiency.

7X243 Boots. Insulated against heat with aluminized asbestos as outside cover, fiber glass batting and flame resistant, duck inner lining. Oak tanned leather sole with fiber glass insulation, plus Silvabestos inner sole.

205RA Pants. All seams double stitched for extra strength. Snap fasteners at front opening. Leather belt loops. Duck lined waist band. Trousers 24″ at bottom. Standard leg length 32″ inseam. Standard waist sizes 30″ to 52″ in graduations of 2″. (Allow 2″ over regular waist measurements.)

204RA Coat. Complete protection for upper body. Wool collar protects neck. Snap fastener adjustment on cuffs assures snug fit. All snap fasteners on front have leather pull tabs for quick removal. All seams double stitched. Coats available in following standard lengths:

Cat. No.	Length
204RA-30	30″
204RA-36	36″
204RA-40	40″
204RA-44	44″
204RA-48	48″
204RA-50	50″

75RA Respirator Hood. Has *aluminized* window and accommodates *new* Thermalair Respirator for protecting head, eyes, face and lungs against excessive heat. Aluminized asbestos.

5X357 Heat Glove. Fully lined with leather palm for handling hot objects and aluminized asbestos back for reflecting heat.

Information on any of the above items will be gladly sent at your request.

*Pat. Applied For

Always insist on Trademarked Safety Products

American Optical
COMPANY
SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASS.
Safety Service Centers in Principal Cities

(For details, use Key # C-5 on card on page 1)

SAFETY IS THE KEY TO PROFITS

by **CHARLES E. BUSLER**, Pres.
C. E. Busler & Associates
Safety Consultants
New York, N. Y.

To prevent losses is to increase profits; and there's nothing miraculous about it. It's a simple matter of cause-and-effect: the prevention of accident losses brings higher profits. Safety accomplishes this not only by benefiting the worker on the job, but also by increasing production and lowering compensation premium rates, third party claims, liabilities and property damage.

Our firm of safety consultants has witnessed the profit-accomplishments of safety time and again in both industry and construction work. But since the safety problems of construction work are more difficult than those of industry, because the working environments are so varied and so continuously varying, our analysis of how safety increases profits will be in terms of construction. It should be noted, however, that the same basic concepts apply to other lines of industry as well.

When a contractor bids on a job, is it on a safety basis or does he skimp on safety requirements to produce a lower bid? If he is thinking of just getting by in complying with state or insurance regulations, he may be working on his last job! One accident or a series of accidents can ruin his "performance rating" for future low bids and also bring higher compensation premiums.

For example, take two like competitors bidding on the same job. Their bids were almost identical except for one item—credit rating. One contractor had been "experience rated" at $3.50 per hundred dollars of payroll costs. The other had a debit rating of $8.50 per hundred. It is obvious who got the job and also was safety minded and a good business risk.

Even a small difference may decide whether or not a contractor can stay in business. Incidentally, according to a U. S. Department of Commerce report, 63 thousand construction firms failed in 1957. Safety is a routine part of good business management and should be adequately provided for in bids.

Can You Afford to Gamble With Safety?

How often is management heard to say, "Go ahead, let's take a chance," or "Just fix it up temporarily," or "It won't happen here; our men are experienced," or "Why spend the extra time?" or "It costs money."

Can we afford to gamble on fancies or facts? The facts are that every conceivable type of accident has happened in one way or another and they can and will strike without warning. Gambling on wishful thinking may mean the last contract.

On the other hand, many contractors and industrial firms think that they have a "sufficient" safety program. Yet an analysis of injury rates and losses may reveal that these safety programs are far from "sufficient," that they are actually expensive and, in effect, appear as a camouflage! Why? It may be inexperience, complacency, or just "something to show."

Safety Camouflage

As an example of safety camouflage, one company hired a safety engineer. But he was only a figurehead. His recommendations went to the boss's desk and stopped. Supervisors carried out the boss's orders. The actual cost of just one accident the company incurred was sufficient to pay the safety engineer's salary! But those accident losses were charged to maintenance costs and neatly covered up! They

claimed they had a safety program. **The real facts were that their profits suffered.**

Safety Pays Four Times Over

While accounting departments can cover up accident costs, it is also evident that inaccurate or incomplete accounting methods can hide the real costs of safety or, put another way, the real profits of safety. Ordinary figures do not reveal to top management the many intangible profits accrued by safety and the fact that safety pays for itself on any job. An efficient job record balanced against safety costs will show that **an all-over, well-rounded safety program may cost less than one percent of the payroll.** By taking both direct and indirect losses from accidents into account, it will definitely show that for every dollar spent for safety there is a saving of four to five dollars! Does this sound like business sense?

The accident frequency determines a contractor's "performance" rating and his compensation insurance premiums. Savings by proper records and proper safety engineering may be as high as 70 percent.

Formerly, the employee shared little interest in the business of the firm other than a day's wages. Today, he is an integral part of the operations. He's the one around whom production and profits increase or decrease. No efficient business can afford to overlook and neglect the safety of employees today. Court awards are usually in favor of an employee suffering from an accident. Labor unrest and strikes may reflect the lack of safe, sanitary or healthful working conditions.

On the positive side, progressive managements realize that the safety and welfare of employees bring multiple benefits, including profitable operation: reduction of insurance premiums, reduction in losses by fire, increased efficiency of employees, increased production, improved morale, better public relations and better customer relations. All these intangible benefits pay dividends.

The safety of the worker is economically essential. But in our present complex and diversified industries his safety requires a complete understanding of his duties.

Can we afford to ignore safety considerations and say to him, "Go ahead and do it; get started right away."

Such statements have been made. Recently a foreman ordered a welder to bond a tank. The welder refused unless the safetyman gave the go-ahead. The foreman asserted he was running the job and the welder had better get started or be fired. The welder still refused and was fired as unsatisfactory. On leaving the area, the welder stopped in at the safetyman's office. The result? Quick tests revealed that high-octane gasoline was leaking into the earth from the tank and that a major overhaul was required!

Many accidents are invited in this way. Not every employee is equipped either mentally or physically to understand or undertake any type of work without possibly endangering himself or others. Or, he may lack the necessary training or understanding of a new job. From another point of view, the experience of the employee may often save needless expense and suffering. Who, for example, would pay the bill if the welder's arc had been struck at the tank?

Who Pays Safety Overhead Costs?

You do! Many construction and industrial firms do not have adequate records to show what accidents have occurred on their various operations or what the losses were.

Safety overhead is a justifiable cost to all operations and each jobsite should carry its share of expenses. A close check of why construction firms failed shows high accident rates. This indicates that safety was needed.

Safety is operated like any good business. Jobwise, it includes costs, performance, schedules, planning and results. Safety pays for itself in many ways, but you will never get a return on it unless you invest something in it. Get behind your safety program and mean business! In reviewing your safety program and revising your methods to provide greater profits for yourself, the services of a safety consultant who is a specialist in these problems may prove helpful.

How Do You Select Personnel?

Construction contractors often overlook some of the real causes of production losses and accidents. One important example is personnel. Contractors select equipment that is able to do the job. Do they select personnel the same way?

Inexperienced and untrained employees mean direct production losses. There are plenty of examples of new, expensive equipment, selected with such care, being wrecked by non-qualified operators. On a jobsite in northern New York state, a man whose vision precluded seeing over 25 feet was employed to operate heavy equipment! One company's retraining program for motor vehicle operators revealed 28 out of 100 drivers as unqualified. Pre-employment eye-corrective-protective examinations on another job showed 11 out of 100 had eyesight conditions prohibiting employment unless corrected. These deficiencies can be the direct causes of accidents!

Contractors who will not approve defective equipment or unsafe working conditions have often ignored the human equation in their efforts to get production. But the human factor must be covered under a well-regulated accident prevention program—and will repay itself many times over.

Controlled Safety For Better Public Relations

Newspaper headlines continually scream of unfortunate incidents: small boy falls into open excavation . . . small girl crawls into open drain pipe and suffocates . . . disastrous fire takes 24 lives . . . night worker on excavation killed because of inadequate lights . . . speeding auto crashes into open trench because warning sign was too small.

Safety in regard to others—warning and advising of activities, placing of adequate signs, giving the other fellow a chance to live—earns the respect of the community. A good, efficient, public relations-conscious company becomes part of the community. Joining in local activities strengthens the bonds.

Safety of personnel, on and off the job, means greater appreciation from the community at large. A little extra attention to goodwill pays off in many ways. Likewise, a good accident prevention program that returns the citizen-employees to their homes after a hard day's work without incident is public relations at its best. A few accidents can harm the reputation of a company and even lower the community's esteem beyond acceptance.

Success & Safety

Success and safety work hand in hand. Contractural and industrial operations, to be a success, must include these points:

1. Know the safety requirements of the operation, and get safety advice.

2. Start the safety program from the very beginning of the job.

3. Plan and do things the safe way—it is the best way.

4. Select proper safety equipment.

5. Provide the right man for the job and give him safe, dependable equipment.

6. Establish employee safety training.

7. Know your accident costs and safety costs. Keep records.

8. Accept new ideas, methods, services.

9. Provide support for your safety program. Be part of it.

10. Ask for help. Don't hesitate.

Each of these items leaves no room for the "if" of failure. Stop the accidents in your operations before they stop you. After the ambulance arrives it's often far too late!

Long range safety planning is efficient progressive management. It is not the employees but the lack of management interest in safety that sends the performance rating barometer up and down. Planned safety is profitable planning; and safety consultants may be able to help you plan that safety for those profits.

A safety consultant is a well-trained, outside specialist, schooled in the basic engineering of construction and industrial safety problems. He can help you in your operations by: 1. Getting the true facts about your safety activities and analyzing them; 2. Preparing a recommended safety program for your acceptance; 3. Planning, developing and assisting in putting the safety program into operation.

More specifically, he observes every condition on the jobsite, checks for potential and direct hazards, reviews the medical and first-aid organization, employee attitudes, and construction methods. He interviews and tours operations with your supervisors and prepares an analysis of safety requirements for your job. He should also recommend necessary actions to assure continuity of jobsite safety activities.

A well-planned safety program designed to operational specifications can and does increase profits. A regulated accident prevention program in which all employees are partners means greater cooperation, coordination and production. Alertness developed by such a program means fewer accidents, third party liabilities and property damage, and ultimately reduced compensation premiums. Safety is the key to profits.

A CONTRACTOR FOUND PROFITS IN SAFETY—A CASE HISTORY

A LEAK IN PROFITS: **The John Doe Construction Co., which was handling an ever-increasing volume of construction work, paid little attention to accidents because they seemed infrequent. True, the compensation premiums were increasing, but this was viewed as the normal result of increasing business. Finally it became evident that the frequency of accidents was rising and that accidents were draining profits away. The company called in safety consultants to analyze the problem.**

WHAT WAS THE TROUBLE?

1. There was no active safety program.

2. Inspections were extremely casual and incomplete. Remedial actions were slow.

3. Protective equipment was either not provided, not used or not the right kind.

4. Neither supervisors nor employees showed any interest in safety.

5. Equipment took a beating, employees were injured, morale was low, production was low, public relations were nonexistent.

WHAT WAS DONE ABOUT IT? **Under the guidance of the safety consultants:**

1. Management inaugurated an accident prevention program that included hygiene and sanitation and that was well defined as to the responsibilities of superintendents, foremen and employees.

2. Physical working conditions were improved and safety considerations were given to the design and grounding of machines, guards, construction plant layout, lighting, storage areas, parking zones and other potential hazards.

3. Work methods were revised, first aid facilities established, supervisory and employee training classes organized, and daily inspections made with immediate corrective action.

4. Public relations, personnel grievance committees and individual employee safety gained the attention and interest of top management.

THE PROFITS IN SAFETY: **The John Doe Construction Co. gained immeasurably not only from increased production on the jobsite, but also from better community relations and acceptance. Profits no longer leaked away through accidents: lost-time cases diminished; property losses stopped; employee morale curved upward; production efficiency increased; and there was closer cooperation and coordination. Through management's interest in safety, employees gained an insight into management's point of view.**

THE DEVELOPMENT OF A RESPIRATOR FOR ABNORMAL TEMPERATURES

by **WILLEM S. FREDERIK,**
M.D., Ph.D., M.S.
Director of Research
Liberty Mutual Research Center,
Hopkinton, Massachusetts

The exposure of industrial workers to excessive temperatures for relatively brief periods of time is not uncommon in several types of industries. The use of ovens, kilns, furnaces and dryers makes it necessary for workers at some time or other to enter these enclosures for product control, emergencies or for repair and maintenance purposes. Environmental air in these areas exposes the worker to abnormally high and many times dangerous temperatures. Workers experience extreme discomfort, irritation to the eyes, overheating of exposed skin areas, and most important, irritation of the respiratory tract. There is also often a definite fear and dislike of this kind of abnormal environment. Needless to say, these factors have made this type of work extremely unpopular.

Some months ago, one of our industrial hygienists brought one of these very troublesome heat exposure problems to the attention of our Physical Research Laboratory at our Research Center in Hopkinton, Massachusetts. This exposure serves as an example of a typical industrial situation. The personnel of one of our policyholders—a manufacturer of paper tubing—were required to enter a drying oven several times a day to clear jammed tubing and for brief quality checks.

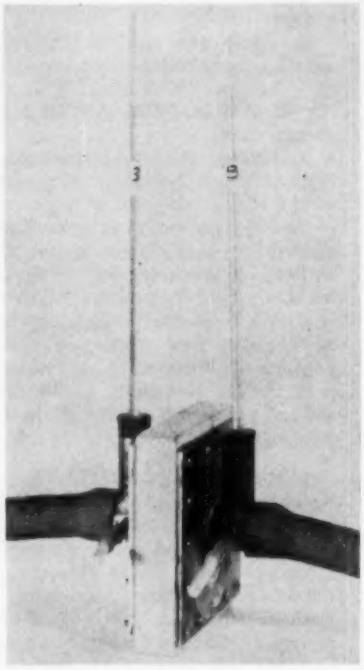


Fig. 2 This is one of the models of a heat exchanger used for research in the development of a respirator for abnormal temperatures. Its screening is aluminum. Note two thermometers, one on each side of heat exchanger.

The temperature in this particular dryer ran as high as 240°F. with varying relative humidities. The heat for this dryer was supplied by a combination of forced hot air and steam pipes. The men found their jobs fatiguing and extremely uncomfortable. The plant faced a problem in employee morale and efficiency. It was reported that after spending a short time in the dryer they were unable to perform their work for the remainder of the day.

Much research had been done in the development of heat protective garments. Clothing, which protects the external parts of the body, including the eyes, is available and is widely used in industry. Up to the present time, protection of the respiratory system has been accomplished by the use of masks supplying cool air through a hose or by the use of a self-contained, insulated air tank carried about by the worker. These solutions to the respiratory problem are, however, impractical for relatively brief entrances in heated areas where temperatures may range up to 300°F., because of limitation of freedom of movement of the worker.

Because of the availability of adequate protection in the clothing line, it was decided to limit the scope of our research to the possibility of developing a compact, self-contained, light respirator which would offer adequate protection against the effects of hot or cold air on the respiratory system of the human being.

The Heat Exchange Principle

The utilization of the principle of heat exchange is extremely appealing for such a problem because it is, in principle, possible to construct a small, self-contained unit

Fig. 1 Operator is wearing a new high-temperature respirator and aluminized asbestos clothing in checking moisture content of lumber in drying kilns. See also the cover picture of this issue.

which will maintain the inspired air at body temperature for an indefinite time—independent of the environmental temperature.

The heat capacity of solids such as metals is, per unit of volume, much greater than the heat capacity of the same volume of air. We, therefore, can store the equivalent of the calorie energy of a large volume of air in a small volume of metal.

Laboratory experiments were conducted to evaluate the practicability of this principle for respirators. Our first experiment with a heat exchanger device suggested that the principle could be used for a practical application. Metallic fibres in a respirator cartridge would act as a heat exchanger. As the wearer inhales, heat is removed from incoming air and is temporarily stored in the fibres. The temperature of the air inhaled by the wearer is thereby reduced. As the user exhales, the stored heat is forced out of the cartridge to the outside air and the temperature of the cartridge is returned to its original state. This cycle repeats as breathing occurs, bringing the temperature of the inhaled air after a few respirations to approximately body temperature.

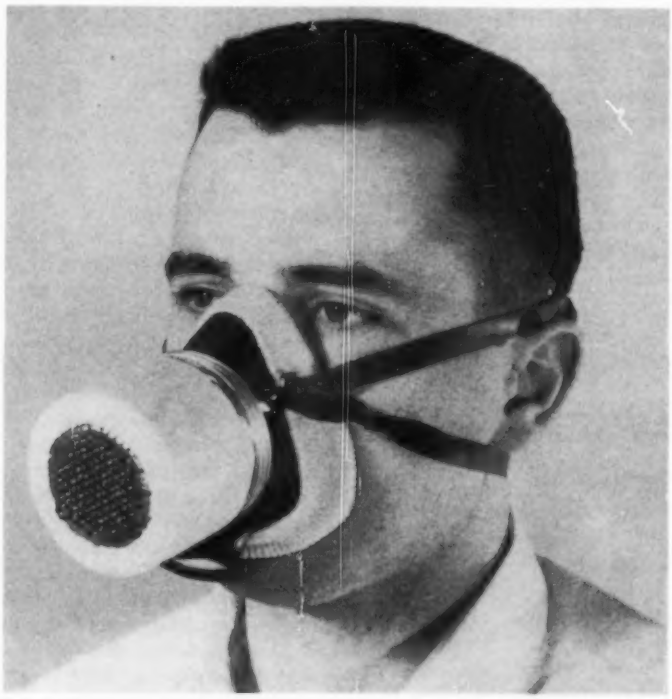


Fig. 3 Showing heat-exchanger respirator for abnormal temperatures.

Our next step was to design a heat exchanging device to be worn in combination with a face mask. The following design factors were taken into consideration:

1. The unit must be lightweight.
2. The unit must perform satisfactorily for at least half an hour in environmental temperatures up to approximately 300°F.
3. The unit must have low flow resistance.
4. Its performance must be satisfactory under conditions of very active bodily energy expenditure in which the respiratory air volume is large and the breathing frequency high.

Experimentation indicated a 3-inch long heat exchanger would work satisfactorily. Regular aluminum screening was found to be

ideal as heat exchanging material. (See Figure 2.) It is practically non-corroding, inexpensive, and has a combination of high density per cartridge volume and low resistance to air flow. Because the heat exchanging unit is exposed to hot or cold environments, adequate insulation of the aluminum screen is important. In cooperation with the safety products laboratory of the respirator manufacturer, a molded shell of lightweight, heat-resistant, polyurethane foam plastic was developed to isolate the metallic screening from the environmental air. The cartridge is so constructed that it can easily be attached to a respirator simply by screwing it into the respirator face piece. A lightweight face piece of soft molded rubber is used and the entire unit weighs only 6 ounces.

Respirator Tests

A series of tests were conducted under actual working conditions in the policyholder plant. One of our industrial hygienists tested the heat exchange cannister in a nose and throat respirator. The hygienist was instructed to continue each test until his pulse rate reached 110—as a precaution against excessive heat stress. Testing began inside a wood drying kiln with a temperature of 156°F., and relative humidity of 20%. The kiln supervisor had reported that men could remain in this kiln for a maximum of seven minutes at a time with no protection. The hygienist remained inside the kiln without discomfort for twenty minutes.

The second test was made inside a "wet" kiln with a temperature of 135°F. However, 80% relative humidity created a more severe endurance problem. Plant workers stated they could only dart in and out of this kiln—never staying in longer than 45 seconds. The hygienist's reaction on entering without the high temperature respirator was of "suffocating, unbearable heat." With the respirator, the hygienist stayed within the "wet" kiln for eight minutes and could have remained longer.

The new respirator, used alone, provides sufficient comfort to permit the wearer to remain in a hot environment long enough to suffer heat effects on the body. Under such conditions, protective clothing as well becomes essential. It is necessary, therefore, to provide for evaluation, education, regulation and controls concerning the safe amount of time which can be spent in a specific hot environment.

Many tests proved the high temperature respirator practical. The aluminum screening creates negligible resistance to the inflow of air. Simple design makes it easy to manufacture and inexpensive to purchase. It is reusable and if it does overheat after prolonged use in extreme conditions it can be set aside to cool or can be quickly replaced with another cartridge. The unit can be washed and sterilized. The respirator manufacturer has developed a special aluminized asbestos hood to accommodate the unit for very high environmental temperatures. An aluminized window in the hood reflects radiant heat from the face and eyes. In addition to this hood and respirator, a complete uniform of aluminized asbestos material is available to provide the worker with full external protection in heated atmospheres.

It should be mentioned in this discussion that the respirator works just as efficiently in cold environments and it will raise the temperature of very cold air to body temperature by the same principle. The new respirator* has been a welcome member in our arsenal of safety devices and is at present in use by operators of drying and baking ovens, kilns, heated wind tunnels, furnaces, boilers, and walk-in freezer lockers.

Field Test Results

Textile Machinery Manufacturer: The respirator was tested in a dry kiln. The unit created considerable interest and enthusiasm with operators and supervisors and both groups tried the respirator in the kiln. The new respirator made it possible for them to enter the kiln with test samples, place them in position at various places along the length of the oven, and return to the outside air without discomfort. This operation was previously performed without a respirator and with much discomfort to the workers.

Glass Manufacturer: August, 1958 Test—"maintenance men have to go between two glass furnaces for minor repairs. One maintenance worker used the respirator and was very impressed. Furnaces operate at 2800°F., and it is extremely hot between the furnaces. Men were able to stay there only ten minutes at a time. The estimated temperature was 130°F. to 150°F. Previous to the new respirator, the workers complained that their noses were burned by the air and they could feel it all the way down to their lungs."

Paper Manufacturer: These people were extremely pleased with the respirator and found many additional uses for it. They find it valuable in getting into boiler fire boxes while the fire box is still warm. The respirator is held in such high regard in this plant that the foreman keeps it locked in his desk drawer and takes care of maintenance himself rather than risk losing the respirator.

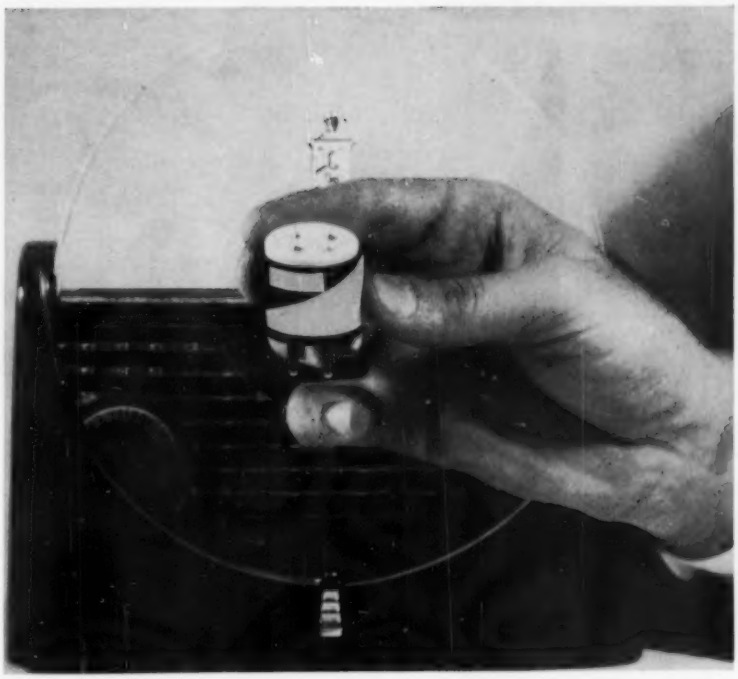
Textile Manufacturer: First Test —May, 1958: Tests were made by the Plant Engineer and Safety Director. They took the high temperature respirator into a large drying oven. Oven temperature was 142°F. The Safety Director reported: "The air that you breathed seemed to be as cold as night air and it breathed very easily. This created the very odd sensation of the entire body being hot and the air you breathe being cold." The respirator was also taken to the coating oven where a water dissolved clay coat is applied to the felt. There are no solvents involved in this operation and the man working there has not worn a respirator in the past. The temperature goes to 162°F. in one portion of the oven. The regular oven man wore the respirator on his trips into the oven. He generally stays inside about 5 or 10 minutes checking splices of felt and he also checks the overhead festoon conveyor. This operator thought that the respirator was just perfect and immediately requested the plant engineer to purchase one for him. This company wants the respirator for oven crews and maintenance men.

*The name and address of a commercial source for the new respirator can be obtained upon inquiry to the Editor.

Plywood Manufacturer: July 11, 1958 test: This company has a series of large lumber drying kilns. It is necessary for a man to enter each kiln 4 or 5 times a day for about 10 minutes to check the moisture content of the lumber. This company has not had trouble with complaints from their men or at least the men have accepted this as part of their jobs. The Safety Director was interested, however, from the standpoint that they soon would have to make an inspection of kilns because of a new sprinkler system installation. They had not been able to do so because of the intense heat. The kiln supervisor tried the respirator with successful results. Kiln No. 2 showed 180°F. dry bulb on the instrument board. The relative humidity was about 4%. "Under these conditions, I (safety director), walked up and down inside of the kiln for five minutes. Although my body was warm, the air coming in through the respirator was quite comfortable. We also tried the respirator in Kiln No. 4. The dry bulb reading was 170°F. The wet bulb reading was 148°F. or 57% humidity. We tried going in the kiln without the respirator but couldn't get far past the door. Even with the respirator I couldn't stay longer than 10 or 15 seconds—however, for the few breaths that I took, the air intake was actually cool—however, the exposed parts of my body, (I was wearing a short sleeved shirt), felt as if they were burning and this was the limiting factor rather than the inhaled air."

Cover picture and Fig. 1 by courtesy of American Optical Co. Figs. 2 & 3 by courtesy of Loss Prevention Department, Liberty Mutual Insurance Co.

"A lesson like that should teach a fellow. That's his ninth lesson!"



Radioactive Fallout Alarm Plugs into Radio

A practical and inexpensive device which can provide every building with its own nuclear fallout warning alarm has recently been developed. After alerting the occupants to dangerous radiation fallout, the device can guide them to safety.

The new device plugs into any standard radio, or television set and sounds a wailing alarm through the loud speaker when exposed to radioactive fallout in dangerous concentrations.

The brain of the alarm unit is about the size of the eraser on a standard wooden pencil. It is made of inexpensive components and it could be packaged to be easily attached to any of the 150 million radio sets or 50 million television sets in the United States.

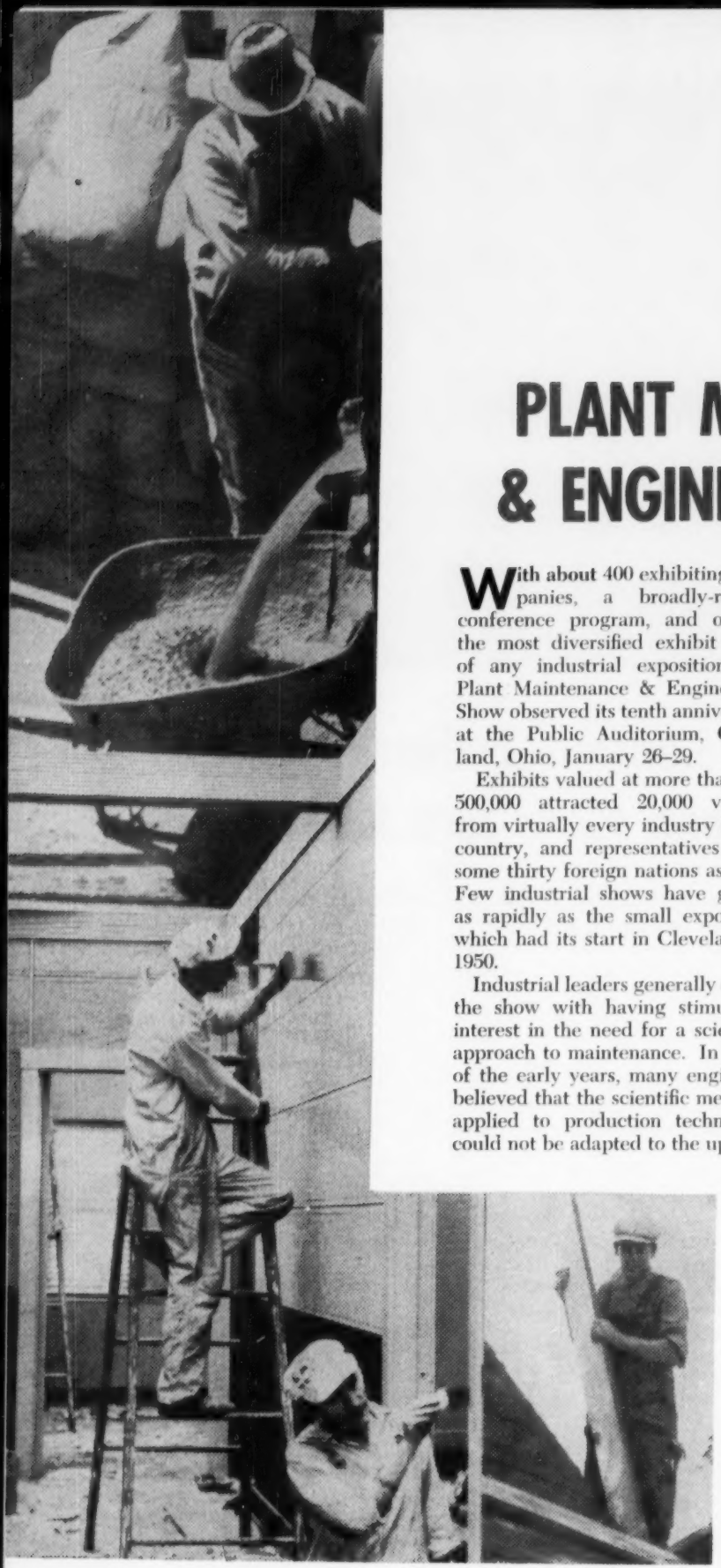
One of the most important aspects of the device is that with auto or portable radios it can act as a pathfinder to lead survivors out of radiation danger areas. The pitch of the warning alarm rises as the amount of radioactivity increases, and falls as the amount of radiation decreases.

By traveling in the direction which causes the pitch of the wail from his portable or automobile radio to fall, a person can escape from a radiation danger zone. Since the ear is the only human sensory organ involved, the device can be successfully used as a pathfinder in a blackout or in the darkness of the open country. As the listener travels away from the radiation zone, the tone subsides to a buzz and then falls silent when dangerous radioactivity is no longer present.

Commissioner Willard Libby of the U. S. Atomic Energy Commission has long been a proponent of such an inexpensive dependable unit to provide a wide-spread alarm network for Civil Defense purposes.

The Engineering Departments of the company that developed the unit were aware of the need for such a device and the firm volun-

(Continued on page 22)



SM goes to

PLANT MAINTENANCE & ENGINEERING SHOW

With about 400 exhibiting companies, a broadly-revised conference program, and one of the most diversified exhibit floors of any industrial exposition, the Plant Maintenance & Engineering Show observed its tenth anniversary at the Public Auditorium, Cleveland, Ohio, January 26–29.

Exhibits valued at more than $7,500,000 attracted 20,000 visitors from virtually every industry in the country, and representatives from some thirty foreign nations as well. Few industrial shows have grown as rapidly as the small exposition which had its start in Cleveland in 1950.

Industrial leaders generally credit the show with having stimulated interest in the need for a scientific approach to maintenance. In some of the early years, many engineers believed that the scientific methods applied to production techniques could not be adapted to the upkeep of machines and plants. However, with the growth of automation, it was discovered that preventive maintenance—the technique of planning to avoid breakdowns—was essential. In some highly automatic industries today, maintenance absorbs as much as 80 percent of the factory payroll, says Clapp & Poliak, Inc., the New York management firm which produces both the show and the accompanying Plant Maintenance & Engineering Conference.

For the first time, there were special sessions devoted to the problems of the nuclear industry, the abrasive products industry, and the general problems of assembly plants. Sessions on air and water pollution, introduced last year, were featured again.

Among the highlights of the 1959 program were such diverse subjects as a preventive maintenance program for control instruments, maintenance by outside contractors, special materials for maintenance, maintaining utilities, and industrial engineering in maintenance, in addition to the traditional subjects. Among industries which again received special attention were metalworking and metal-fabricating, chemicals, electrical manufacturing, petroleum processing, pulp and paper, foundries, and research and development laboratories. At these specialized meetings, engineers discussed the maintenance aspects peculiar to their industry. In all, there were 51 meetings, with speakers drawn from 19 states and

For a copy of booklet described on oppos page, use Key # C-6 on card on page

Pittsburgh COLOR DYNAMICS® used in Chrysler Corporation's huge new stamping plant

Modern system of painting helps to improve productive efficiency, morale and safety of workers in world's largest factory building located at Twinsburg, Ohio.

As another important step in the continuing expansion of its production facilities, Chrysler Corporation has activated its mammoth new stamping plant at Twinsburg, Ohio.

● **Walls, ceilings, floors,** machines, conveyors, motorized equipment and overhead cranes throughout this immense structure are painted according to Pittsburgh's modern system of COLOR DYNAMICS.

● **This huge building,** covering 1,835,900 square feet of space, is the world's largest plant under one roof. Here are produced roof and rear quarter panels, fenders, door panels, deck lids and other smaller body parts for all Chrysler Corporation cars and trucks. Production capacity is 2,000 tons of steel per day.

● **One of the impressive features** of this new plant is the greater use of modern machinery. As this equipment reduces physical fatigue by increasing efficiency in the handling of materials, so the functional use of color, according to COLOR DYNAMICS' principles, lessens eye fatigue and nervous tension among workers.

● **Proper use of eye-rest** and focal colors provides better contrast between working parts and materials being fabricated. Operators see their jobs better and with less eye strain. Morale-building colors on walls and ceiling reduce glare from light sources and eliminate heavy shadows, creating more pleasing work areas. Warning and safety colors on machine controls, conveyors, motorized equipment, traffic lanes and cranes indicate hazard areas and reduce the danger of time-loss accidents.

● **Chrysler's new Ohio stamping plant** is only one of thousands of factories in which COLOR DYNAMICS has helped to improve productive efficiency, morale and safety. Why not test the practical value of this modern painting system in your plant? You'll find it costs no more than conventional maintenance painting.

You can get a COLOR DYNAMICS Plan of Your Factory—FREE!

● For a complete explanation of COLOR DYNAMICS, send for our new profusely illustrated book. It explains simply and clearly what this new kind of painting system is and how to put it to work in your plant on machines, walls, floors, ceilings and mobile equipment. Better still, we'll gladly show you exactly how to apply it in your plant. Let us submit a detailed color study of your entire factory, or any part of it, without cost or obligation. Call your nearest Pittsburgh Plate Glass Company, or mail this coupon.

Send for a Copy of this FREE Book

Pittsburgh Plate Glass Co., Paint Div.,
Department SM-39, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your booklet "COLOR DYNAMICS."

☐ Please have your representative call for a COLOR DYNAMICS survey without obligation on our part.

Name_____

Street_____

City_____

County_____ State_____

PITTSBURGH® PAINTS

PAINT • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

page, use Key # C-6 on card on page

Canada. Highlights of some of the speakers' comments follow.

***"Why Safety Is Essential & How to Secure It"*—W. C. Cooley, assistant manager, maintenance department, missile systems division, Lockheed Aircraft Corp., Sunnyvale, Calif.**

Almost any maintenance occupation is loaded, really loaded with hazards. What can we do to make our operations safer and have a safer Maintenance Shop?

Most safety devices cost little money and are easily installed. All safety programs cost very little other than time, and this time is well worth while. Safety devices to give physical safety in your operations help cut down accidents. These safety items fall into two categories: 1. Safety appliances for specific hazards; 2. Safety guards or devices which are applied to existing equipment and general requirements.

Equally important as the physical aspects of safety is the promoting of safety consciousness in employees. We give our maintenance employees a safety quiz for his own information. He grades and keeps his own paper. We also hold regular safety meetings and have our own safety committee. The latter inspects the plant regularly for hazards and hazardous acts. Each new employee should be well oriented on the safety policies of the company, especially on the disciplinary action taken for violations of safety rules.

The most important method of promoting safety consciousness is through safety supervision. The constant awareness by supervision of the safety aspect of each job is the most effective way of reducing accidents.

When your safety program in maintenance is set up, plan to reward groups or individuals for good safety records. Use safety stories in the company paper. The results of a maintenance safety program are big dividends in dollars, efficiency and morale.

***"Basic Procedures In Plant & Building Maintenance"*—G. A. McFadden, building engineer, Nationwide Insurance Co., Columbus, Ohio**

When our new home office building was completed, with some $2 million in mechanical equipment to take care of, we decided to write up complete maintenance schedules and have records, forms and job descriptions for all the men. The result was two manuals that are strictly of a practical nature and readily understandable by the average maintenance man. The first manual contains a complete description of the different types of heating systems, also recommended maintenance and operation. Similar coverage is given to air conditioning and ventilating systems, electrical systems, sanitary plumbing. In a "Miscellaneous" category, we cover water treatment, lubrication, codes, cafeteria, elevators, fire emergency detail, boiler and machinery insurance, tools and inventory, reference reading, records and data sheets.

The second manual pertains mostly to the maintenance staff, personnel, job descriptions and maintenance schedules.

Safety And the Maintenance Man

(Following is an excerpt from the address by J. M. Conrow, works engineer, Longhorn Div., Thiokol Chemical Corp., Marshall, Tex.)

"A maintenance mechanic is ordinarily considered to be a potential accident. His exposure to an accident, and I do not necessarily mean an injury, is usually far greater than any other class of plant employees. Maintenance management must, therefore, be heavily slanted towards a safe operation. Efficiency, economy and reliability are all important, BUT not at the undue risk of injury to a maintenance employee.

"Maintenance management has a very real challenge in this area of activity. How best to accomplish, under pressure, emergency work safely is always a problem. Too often maintenance supervision and employees are prone to take chances, try shortcuts, hurry unreasonably, or fail to plan in an emergency. At the completion of a job, they often find, to their chagrin, that production time has actually been lost, an employee has been hurt, or work has been improperly performed because of violations of basic safety practices. We must never permit the pressure and rush of a job to sway our judgment in respect to safe work performance, for all the production in the world will never replace an eye, a hand, a leg, or a life."

***"Setting & Maintaining Sanitation Objectives"*—Kenneth Bowman, supervisor, sanitation department, Delco-Remy Div., General Motors Corp., Anderson, Ind.**

It has been estimated that over $4 billion is spent annually nationwide in keeping plants and buildings clean and that 30 percent of this expense is being spent ineffectively. Since up to 92 percent of the cost is labor, this is the area to explore first when starting an improvement program.

Modern sanitation means a planned sanitation program. The first step is to survey your present system not only for costs but also for degree of cleanliness required or desired, effective supervision, efficient use of manpower, employee equalization of work, and applications of methods and procedures.

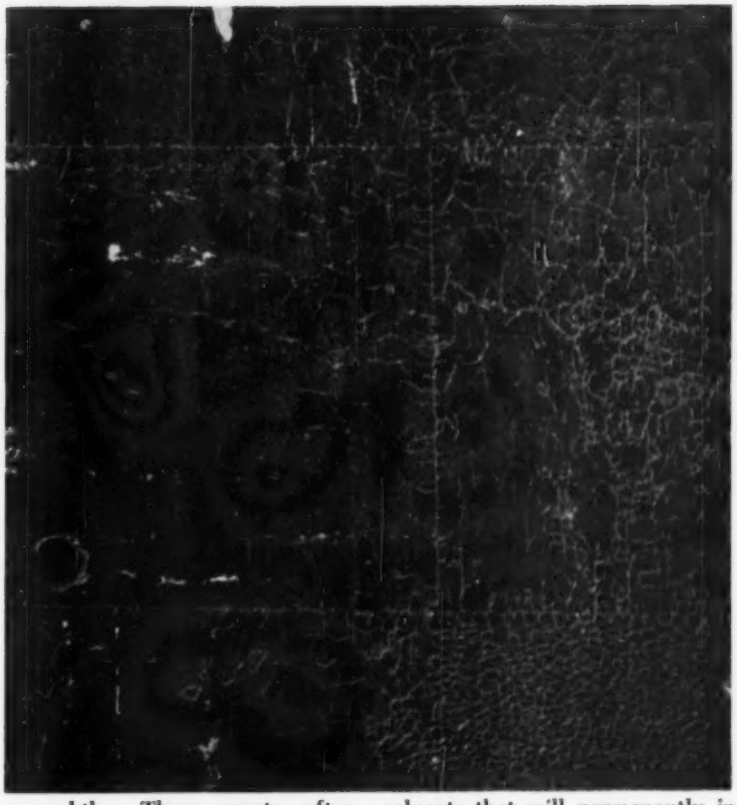
In our plants a Sanitation Department has been set up separate from the Maintenance Division. Indirect supervision of sanitation employees was eliminated by placing them under the direct control of Sanitation Supervisors. The following step-by-step process in developing a planned sanitation program has been very satisfactory:

1. Contacting plant supervision and getting management support for the program;
2. Defining types of work areas;
3. Determination of type of cleaning and frequency;
4. Making plant layouts showing departments, aisles and areas in detail from blueprints or tracings to be used in measuring or calculation;
5. Determination of methods and procedures;
6. Establishment of job assignment rates;
7. Determination of when work is to be done;

(Continued on page 24)

how poor maintenance *ruins* — ASPHALT TILE

DANGER SIGNS!
Cracks
Checking
Pitting



The cracks, checking and breaks in this asphalt tile floor can be blamed directly on the use of alkaline or caustic cleaners, which dry out the tile, make it hard and brittle, and eventually cause the complete disintegration of the floor itself under traffic. The alkali in the cleaners used on this floor has emulsified the resin and plasticizers of the asphalt tile, resulting in this hard, brittle, shrinking surface. Note that the drying-out effect is more obvious at the edges of the tile, indicating that perhaps the water, fast-acting cleaners and powerful wetting agents have seeped down into the cracks in the tile and have left deposits of the alkaline salts in concentrated form. In the damp mopping that followed, the wetting and re-wetting of this concentration of alkaline salts has caused almost continuous "swelling" action.

Also the pitting of this asphalt tile floor is a sign that solvents have come in contact with the flooring. Oil, greases or solvents will soften and may even eventually dissolve the tile. Strong caustic cleaners will also cause pitting.

It is obvious that adequate surface protection had not been given this floor. Simple cleaning and damp mopping with a good neutral chemical cleaner, followed by the application of a good water-emulsion wax, could have saved this floor with little or no added maintenance expense.

Members of the Asphalt Tile Institute approve these general recommendations:

1. Don't clean resilient floors with gasoline, turpentine, benzene, or naphtha. These agents soften and discolor flooring materials.

2. Never use strong soaps. They are the most frequent cause of floor trouble and do more harm than the most constant wear. They fade and discolor your floor and actually cause it to slowly wash away.

3. Strong soaps are manufactured by combining oil with a strong alkali such as lye. This alkali attacks the basic ingredients of most resilient floors causing them to become brittle, hard and subject to easy chipping and cracking. Furthermore, alkali causes a chemical change in color pigments, which action often results in discoloration.

4. Do not use varnishes, lacquers, shellacs or other plastic finishes. These materials usually contain solvents that will permanently injury the flooring. It is almost impossible to remove the build-up, for the solvents that will remove such finishes are also solvents for the floor itself.

5. Do not use waxes containing such solvents as turpentine or benzene, as they soften the tile and cause colors to bleed.

6. Never use oily sweeping compounds.

The manufacturers of asphalt tile flooring agree on this simple procedure. Choose a "neutral chemical cleaner" for the cleaning of your resilient floor. "Wax with a good grade of water emulsion wax."

To the eye or to the touch the asphalt tile surface is smooth. However, when inspected microscopi-

cally, there are thousands of small pits and voids that cause asphalt tile to be extremely porous. These pits and voids must be sealed off or they will become dirt-catching pores that prevent thorough cleaning and create future maintenance headaches.

Undercoaters are available to provide a smooth base for the wax coat that is to follow. These emulsion type undercoaters that are completely compatible with the water-emulsion wax coat recommended for all asphalt tile floors have also been used to restore the vivid original colors of asphalt tile —especially useful where old and new floors are adjoining.

Material by courtesy of Hillyard Chemical Co.

Editor's Note: Coming up in the April issue, "How Poor Maintenance Ruins Rubber Tile Floors."

Another Accident Checked ✓

Although struck on the head by a 10-pound metal plate driven by tremendous pressure, Lemuel W. Medley, an employee of the Fischbach and Moore Company at Tullahoma, Tennessee, not only escaped fatal injury but received only a slight laceration of the forehead as his safety hat absorbed the brunt of the blow. He was handling the electrical work on construction of a wind tunnel and other testing facilities.

Pressure, built up in a transformer by nitrogen gas, pushed a column of the gas upward against the cover, located on top of the transformer. The 26 screws in the bushing shipping cover plate had been removed to allow workmen to take off the cover, a ¾-inch thick plate, 18 inches in diameter. The plate was stuck and Medley had begun prying it loose when pressure blew the plate upward.

Medley was bending forward in a kneeling position, and with his head downward over the cover plate. The cover plate struck the front of Medley's hard hat. It then spun 50 to 60 feet into the air, according to witnesses.

Medley was knocked semi-conscious and another workman prevented Medley from falling approximately 25 feet to ground level. Upon removal to the dispensary, it was found he had received only a small forehead laceration and he immediately returned to work after treatment.

Picture by courtesy of Mine Safety Appliances Co.

Fallout Alarm

(from page 17)

tarily undertook to develop it at its own expense as a result of a luncheon discussion with Commissioner Libby at the Geneva Conference on Peaceful Uses of the Atom in September, 1958. The first working model was successfully demonstrated to Commissioner Libby in December, 1958.

There have been other attempts to adapt standard radios for civil defense warning purposes. The devices, however, have been bulky, complicated to manufacture and service, and expensive.

Plugs Into Tube Socket

This new fallout alarm is a tiny device which could be designed to plug into standard radio tube sockets. Thereafter the radio tube plugs into the device itself. The latter is made from readily available commercial components.

It operates only in response to radiation. In AC operated sets, it will operate as long as power is available. Its full utility is realized, however, in a portable battery-operated set with its independent power supply. Since it draws no current in the standby condition, it does not drain the batteries.

The unit can be made sensitive to as little as 100 milliroentgens of radiation per hour. At this small radiation concentration, the device makes a popping sound. When radiation increases to 1 roentgen per hour and beyond, as it would with the passage of a nuclear fallout cloud, it emits a continuous high pitched wail.

A source for further information about the radioactivity warning alarm can be obtained upon inquiry to the Editor.

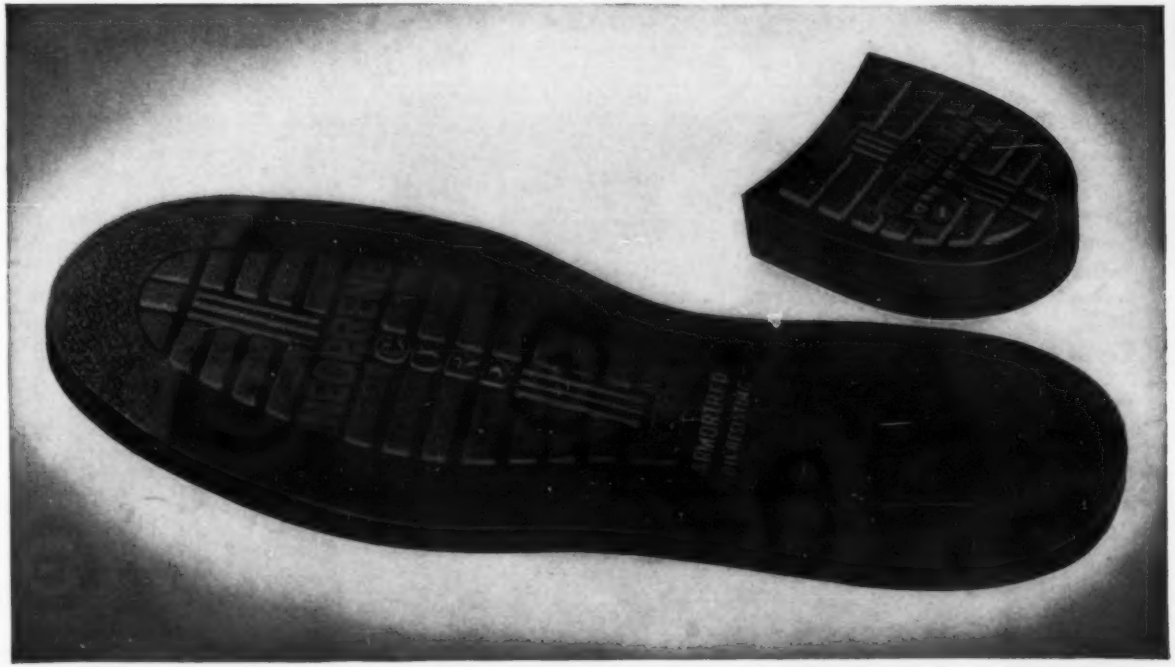
Armortred NEOPRENE Cord Soles and Heels

NEW SAFETY and WORK SHOE SOLE BY QUABAUG

By Invitation Member
Emblem of BUSINESS CHARACTER
Rice Leaders of the World Association
Represents High Standing in NAME - PRODUCT - POLICY

DUPONT NEOPRENE TIRE CORD

Combined for Protection against
OILS—HEAT—ACIDS
LONG RUGGED WEAR
and a SAFE SURESTEP
SMART for STYLE
14 & 18 IRON BLACK or BROWN
with or without Red Label



ANOTHER FINE PRODUCT BY QUABAUG—CRAFTSMEN IN SAFETY, WORK and DRESS SHOE SOLES

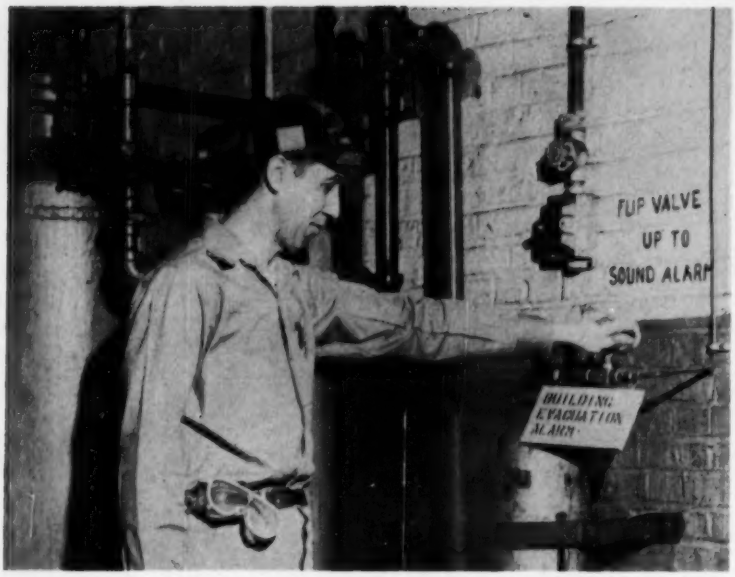
There is no short cut to quality

MANUFACTURED AND DISTRIBUTED BY **QUABAUG RUBBER COMPANY** NORTH BROOKFIELD, MASSACHUSETTS

(For details, use Key # C-7 on card on page 11)

Safety Maintenance SALUTES

A SAFETY IDEA



Evacuation Alarm Systems

Fixed-system installations of non-electric warning horns have widened the margin of operational safety at critical locations of Merck & Co., Inc., and American Cyanamid Company.

At Merck's Rahway, N. J. plant, where a variety of highly flammable solvents are used in processing, an independently operated alarm system was developed to give building occupants warning in case of fire or hazardous vapor conditions.

Central Cylinders

Four powerful diaphragm horns, operated by two cylinders of compressed gas, were installed in corners of the 125 x 200′ building. The horns were connected with aluminum tubing and "teed" into the cylinders. Needle valve adjustments on each horn were set to predetermined sound levels and the system integrated with two quick-opening valves attached to the cylinders. The entire system can be manually activated from either location. Usage of compressed gas permits complete safety of operation in hazardous vapor areas and total independence from outside power sources (such as plant air and electricity) that could be disrupted during an emergency.

Outdoor System

A similar system was installed out-of-doors at American Cyanamid's Linden, N. J. plant in an area where hydrocyanic acid is stored. Company safety supervisor, Leon Becker, and the alarm manufacturer's engineers designed an alarm system to be activated by field personnel in the event of fume leakage from the storage tanks.

Three horns were staggered in the area, each one tied-in to a single cylinder of nitrogen. When a leak is detected by anyone in the area, the individual immediately goes to the up-wind horn and sounds the alarm. A simple windsock, clearly visible from any angle, eliminates guesswork and speeds the warning.

Picture by courtesy of Falcon Alarm Co.

Plant Maintenance Show
(from page 20)

8. Measuring, counting and applying job-assignment rates to types of work areas;

9. Calculation and description of individual assignments and work schedules;

10. Determination of job assignment ratings and employee performance ratings;

11. Printing and compiling of the Sanitation Program into manual form for distribution;

12. Supervision training and explanation of the program;

13. Reviewing the program with plant supervision;

14. Establishment of the program, making necessary transfer of employees;

15. Follow up and review of the program's operation with plant supervision.

***"Maintenance Materials"*—Kenneth N. Banthin, supervisor of construction and maintenance, Visking Co. Div., Union Carbide Corp., Chicago, Ill.**

The speaker described the uses of many of the newer maintenance materials used as protective coatings for structures; protective coatings, linings and fabrication for production equipment; vapor and moisture barriers; glazing; floors; tarpaulins; and safety equipment such as machine guards, barricades, carboys, gloves, boot liners and machine parts. The materials included stainless steels, special alloys, glass, enamel, rubber, ceramics, elastomers, phenolics.

***"Maintaining Utilities"*—Arthur F. DeLong, plant engineer, Exide Industrial Div., Electric Storage Battery Co., Philadelphia, Pa.**

Utilities are the life-blood of our manufacturing operations and are also a source of considerable expense. Good maintenance of plant utilities can bring savings of 10–40 percent in the costs of individual utilities. To realize these savings, the broad approach must be taken. Service economy comes from careful analysis of needs, careful design of generating and distribution sys-

tems, careful installation, and good maintenance of the systems installed. This last requires training, inspection, scheduling and follow-up.

The speaker then described some of the ways savings can be made in the use of water, steam and heat, compressed air, gas and fuel and outlined some of the causes of excessive piping maintenance costs.

***"Economical Use of Electric Power"*—Phillip A. Dethloff, building superintendent, research & development dept., metal div., Continental Can Co., Chicago, Ill.**

Maintenance costs demand careful and continual scrutiny and electrical costs are certainly no exception. Because the power supplier may be a rate regulated public utility is no assurance that the customer is getting everything he can for his power dollar. By understanding the power bill and using the metering equipment standard to most plants, the power customer may be able to recognize more efficient operational procedures that would cut power bills.

***"Maintaining Electronic & Other Control Systems"*—Charles Suchanek, superintendent of maintenance, Republic Aviation Corp., Farmingdale, N. Y.**

Since the advent of the numerical control of machine tools, many problems have arisen in connection with the maintenance of these automatic controls: Will the maintenance people require special training? Will present set-ups be capable of handling this complex equipment? Since there were no standards for this maintenance, at Republic we held meetings with such groups as Plant Equipment, Production Planning, Engineering Computing, Maintenance Facilities, etc.

We decided to coordinate the maintenance group since the new machine tools use closed "electro-hydraulic" loops. The electrical technicians and machine repairmen work together as a team, thereby gaining knowledge of all phases of numerical control. We selected crews from our own maintenance people who had had experience with machine tools using hydraulic tracers, electronic tracers and manual controls. The trainees were sent to the manufacturer's plant for a three-week training course covering operation, electronic maintenance and servo maintenance. They also worked with the manufacturer's field engineers during installation of the equipment. The electronics electricians required further training in binary-digital-analogue circuitry.

In addition to the multi-purpose meters used in electrical maintenance, electronic and numerical controlled machine tools require special test equipment. The most important is the oscilloscope for adjusting tuned circuits, observing wave forms, checking voltage, current and phase relationships, etc. Other necessary test devices are tube checkers, oscillograph, vactube voltmeter, two variable power supplies with a pulse generator.

(to be continued in the April issue)

Reduce Accident Rates

and the Cost of Preventing Them

Because of the intriguing newness of constantly changed messages, a Wagner Changeable Copy Board is by far the most effective media for selling safety day and night—many times as effective as any permanent type sign. A "mechanical hand" permits change of copy in a matter of minutes and without the use of ladders. Act today. Improve your safety record immediately.

with

WAGNER
ENDURONAMEL*
CHANGEABLE COPY BOARDS

FREE Wagner Safety Data File . . . Use coupon now!

Shown is one of the installations for Standard Railway Equipment Co., Hammond, Indiana.

WAGNER SIGN SERVICE, INC.

358 S. HOYNE AVENUE CHICAGO 12, ILLINOIS

Please send a Wagner Safety Manual.

NAME (Title) .....

COMPANY .....

STREET .....

CITY & STATE .....

* Reg.

(For details, use Key # C-8 on card on page 1)

taming the WHOOSH of a missile fuel

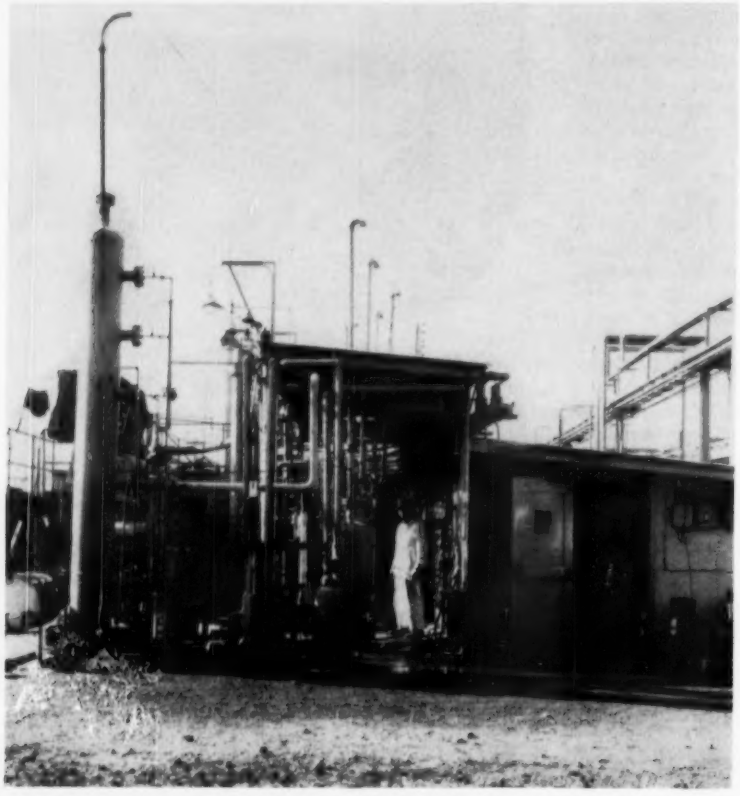
HOW THE SAFETY AND TOXICITY PROBLEMS OF HIGH ENERGY FUELS HAVE BEEN SOLVED

Commercial scale production of a boron-hydride high-energy fuel for missiles and aircraft has been accomplished recently after several years of process development. As a result of this achievement there is now little doubt that in the near future this fuel will be as plentiful and as cheap as most other compounds that are used for comparable applications, according to Lewis A. Barry, operations manager, Research and Development Laboratories, Callery Chemical Company at the national meeting of the American Institute of Chemical Engineers.

Although boron hydrides cannot be considered a basic source of energy, they appear to be superior to most other energy sources for missiles and aircraft, Mr. Barry said. Other uses of boron hydrides are expected to continue to expand also. He mentioned particularly wider application as fuel additives, special industrial reducing agents, and antioxidants.

The solution of production problems largely involved two general characteristics of boron hydrides. They are extremely reactive chemically and are sensitive to air and moisture. In general, they are quite toxic.

A look at Callery's safety record indicates that these handling problems have been solved. Callery's accident frequency and severity rates, over the past five years, are much lower than the average of comparable chemical plants having about the same number of employees.

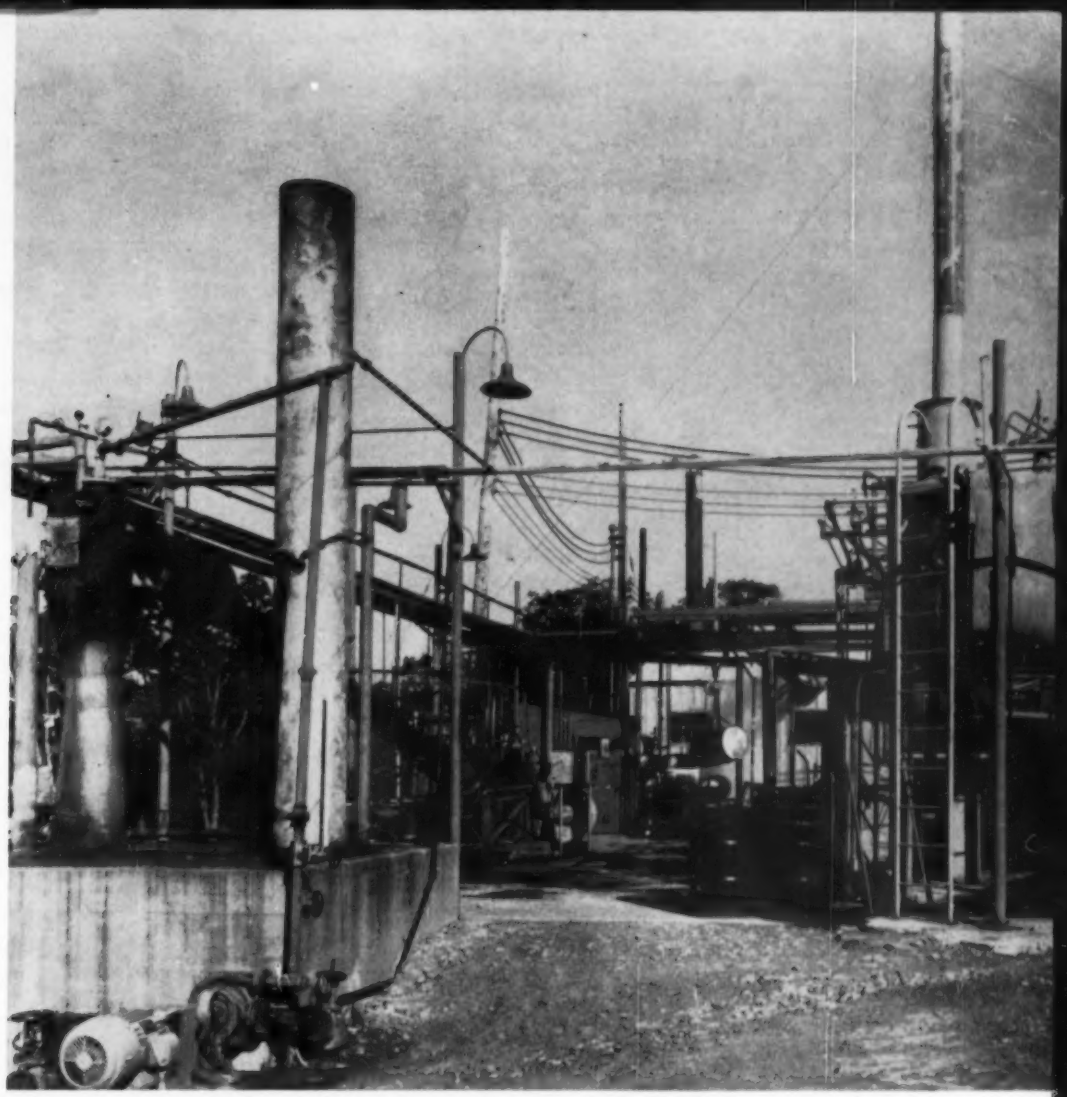


A typical outdoor pilot plant for making boron hydrides. This equipment was used during the development of large scale production in Pennsylvania.

Energy Content

In spite of the safety problems there are three valuable characteristics of boron and boron hydrides. First, boron's heat of combustion is more than 75 percent greater than that of carbon, basic constituent of coal and petroleum. See Table 1. Second, boron is abundantly available. Third, it forms many complex hydrides. Low molecular weight compounds tend to be gases at ambient conditions, and the higher ones are liquids and solids. These compounds are strong reducing agents and release considerable energy when oxidized.

Boron hydrides were first prepared and identified shortly after 1900. By 1924 Alfred Stock and his co-workers in Germany had prepared and identified most of the boron hydrides. Dr. H. I. Schles-



Elaborate equipment provides for waste disposal. A waste system, (R) has a submerged combustion burner to concentrate aqueous wastes from scrubber sump. On left, scrubber takes flue gases from disposal burner.

inger, his co-workers, and students at the University of Chicago, led in further discoveries in the United States.

The Naval Research Laboratory started an aircraft fuel project about this time, and a little later the parent corporation of Callery Chemical Company began supplying laboratory quantities of boron hydrides. Callery continued to participate in the Navy program after the company was formed in 1948.

The Navy became convinced that modified boron hydrides could be high energy fuels, and the Bureau of Aeronautics expanded the project. Callery was asked to develop an economical industrial production process. The feasibility of a large-scale process was demonstrated in 1955 by pilot plant operation. Callery was then requested to build a plant for the Navy. This $38 million plant is at Muskogee, Oklahoma, and is expected to start operating early in 1959. Another $4 million plant of its own was built at Lawrence, Kansas, to meet increasing demand for test quantities of high energy fuel. This plant recently began producing the high-energy boron-based fuel.

Fire and Safety Problems

Mr. Barry discussed separately the three main problems in development of a large-scale production process. Because some of the intermediates are so reactive to air, he said that when these materials leaked from a processing system they usually burned and sometimes exploded. Pilot operating units were, therefore, usually isolated and operated remotely or behind barricades. Explosion protection has been provided also by soft-wall or blow-out panel construction. Most common fire extinguishants are not effective on boron hydride fires, and some are violently reactive with boron hydrides. Water fog or spray systems and some new foams have been found to be moderately effective. The best procedure is to cut off the source of supply of the hydride and try to confine the fire with extinguishers.

Some of the boron hydrides and derivatives are readily decomposed by air and moisture, and it is necessary to seal all parts of a process unit to exclude atmosphere. Nitrogen is used as an inert blanketing

TABLE I

Comparative Energy Sources

Source	Heat of Combustion Btu/lb.
1. Hydrogen	51,600
2. Lithium	36,900
3. Beryllium	29,200
4. Boron	25,100
5. Carbon	14,140
6. Diborane	31,370
7. Pentaborane (9)	29,100
8. Decaborane	28,100
9. Gasoline	20,700
10. Fuel Oil	17–18,000
11. Coal	13–14,000

gas. A nitrogen generating unit is a necessary auxiliary to a boron hydride plant. Decomposition reactions may be vigorous and sometimes violent. Decomposition products may be solids which clog operating systems. Others may cause corrosion.

Before a system that has been opened for maintenance can be returned to service, it must be thoroughly dried and the air removed. The system may be flushed with volatile cleaning and drying solvents, then purged with hot, dry nitrogen. Vacuum pumps may be used on small units but should not be used in larger plant equipment.

Because of the toxicity of boron hydrides, methods have been developed to detect traces in the atmosphere. Continuous, automatic monitoring instruments and colorimetric manual sampling test kits are now in use and have been made available commercially. These instruments can detect a few parts of boron hydrides per billion in the air.

To minimize the effect of atmospheric contamination on operating personnel, process enclosures are maintained under reduced pressure, and the operating area outside the cells is under pressure greater than atmospheric pressure. Air inside process enclosures is changed 60 times per hour. Workers inside the cells wear protective clothing and gas masks—oxygen breathing apparatus for prolonged periods or canister masks for short periods.

Waste disposal has been a problem. Burners and combustion chambers were specially designed for combustible wastes, and flue gases are scrubbed free of boron compounds. All process-vent gases are also scrubbed. Aqueous wastes may be concentrated and hauled away for safe disposal.

Mild steel, copper and brass are the commonly used materials of construction in processing equipment. However all metals except aluminum, magnesium, and their alloys are satisfactory. Gasket and seal problems arose from the susceptibility of most rubber and plastic materials to attack by boron hydrides. Acceptable gasket materials now include some asbestos compositions, Teflon, Kel-F, and metals.

Welded and flanged pipe and tubing are preferable to screwed fittings to avoid leaks resulting from the extremely low viscosity and surface tension of most boron hydrides. Special lubricants had to be developed for pumps and compressors because most boron hydrides are "anti-lubricants," i.e., they are miscible in common lubricants and seriously impair their lubricating qualities.

Although the many problems of boron hydride production have taxed the resources and ingenuity of chemical engineers, most have been solved, and the rest are nearing solution. Markets are developing for these compounds and many of them will be produced in ever increasing quantities as new applications are found.

Pictures by courtesy of Callery Chemical Corp.

Traffic Safety School

One-week courses in state traffic management will be conducted in four regions of the United States during the coming months by the Center for Safety Education at New York University's Division of General Education.

Attending the courses will be official state coordinators of traffic safety who have been designated by the governors of their states. Dr. Walter A. Cutter, director of the Center, is in charge of the courses.

"The need for a more unified and concentrated attack on traffic accidents, utilizing to the full all official state agencies, has long been recognized," Dr. Cutter said. "These courses, the first of a series, have been developed to meet that need."

State Delegates

The first course was conducted in January at New York University's Washington Square Center. The chief executives of Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New York, Pennsylvania, and Ontario designated officials to attend.

Some of the aspects of traffic management to be examined during the courses are state-county-community relationships, analysis and use of accident and driver records, driver licensing as a control technique, traffic and highway engineering, law enforcement, and safety education.

"Registrants will study the respective roles of all major governmental functions concerned with traffic safety," Dr. Cutter said. "Special attention will be paid to stimulating citizen support for state programs."

Future Courses

The next three presentations of the course will take place at the Georgia Institute of Technology (March 9–13), Northwestern University in Evanston, Illinois (April 13–17), and the University of Utah (May 18–22). Governors of surrounding states will nominate participants for each of the regional courses.

Cooperating with the Center for Safety Education at NYU in planning the courses are the Association of State and Provincial Safety Coordinators, the National Safety Council, the Automotive Safety Foundation, and the Association of Casualty and Surety Companies.

Funds for the program have been contributed by the Esso Safety Foundation, the Association of Casualty and Surety Companies, the Automotive Safety Foundation, and the Bartlett Arkell Fund at the Center for Safety Education.

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

MEMBER . . . . . .
Master Superior Court, New Jersey
American Bar Ass'n, New Jersey Bar Ass'n,
Chairman, Committee on Workmen's
Compensation, New Jersey Bar Association
National Federation Insurance Counsel
Past Commander, American Legion, Post 10,
. . . . . Newark, N. J.

LAST FIRM PAYS—9-Day Employee Awarded $18,019

A worker who contracted tuberculosis during 44 years of foundry work was ruled eligible to collect $18,019 in workmen's compensation payments from the firm that employed him for the last nine days before he was disabled.

Masko v. Barnett Foundry & Mach. Co.; New Jersey Superior Court (App. Div.). No. A-519-57. Jan. 9, 1959.

FALLS—TRAUMATIC ARTHRITIS—Arising Out of Employment—Course of Employment

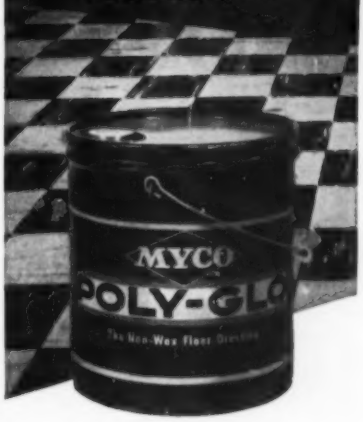
The finding of the compensation board, that the claimant suffered the occupational disease of traumatic arthritis due to the nature of his employment, was erroneous because it was unsupported by substantial evidence. The claimant, sixty-three years of age, was the head keeper of a penitentiary. While walking in one of the corridors of the institution he "went down and that's all." The claimant's doctor testified that the claimant's condition developed over the course of several years and since most of his employment had been on his feet, he felt that his work contributed to his condition. The court held that there was no evidence in the record to sustain a finding of accidental injuries. Although disability was incurred while working, there is no basis for finding that the nature of the claimant's employment was such as to produce the disease as a natural incident of his employment.

Newton v. County of Erie; New York Supreme Court, Appellate Div., Third Judicial Dept. No. 1060. December 2, 1958.

AGGRAVATION OF PRE-EXISTING BACK CONDITION—Due to Medical Treatment

There was substantial medical proof to sustain the board's finding that an employee's death from metastatic neoplasm was accelerated by medical treatment provided as a result of a lifting injury sustained by the employee at work. The employee first experienced pain in his back while lifting handrails for his employer. The pain in his back persisted, but tests made for herniated disc conditions were negative. Decedent was referred to a psychiatrist who prescribed shock treatment. The decedent be-

FOR SLIP RESISTANT, EASY TO MAINTAIN FLOORS . . .



Non-Wax
POLY-GLO*, *the toughest, brightest finish for your floors*

**Rated "excellent" by Underwriters' Laboratories' James Machine for slip resistance.*

One coat of POLY-GLO outlasts two coats of conventional floor dressings, making it possible to cut floor maintenance time up to 50%. POLY-GLO resists scuffing, heel marking and water spotting, will not yellow. Easy to apply, dries in minutes to a high luster, and removes easily with a neutral cleaner when floors are stripped.

FREE! 32 PAGE MODERN FLOOR CARE BOOKLET "WHAT EVERY EXECUTIVE SHOULD KNOW ABOUT THIS VITAL THOUSANDTH OF AN INCH." SEND FOR YOUR COPY

Branch Offices in Principal Cities In Canada; Toronto, Ontario

MYCO®

MASURY-YOUNG CO.
76 Roland Street, Boston 29, Mass.

☐ Please have your representative in my area call me for an appointment to discuss THE MYCO METHOD OF FLOOR CARE

☐ Send me free your new floor care booklet "What Every Executive Should Know About This Vital Thousandth of an Inch".

*Name*_____
*Company*_____
*Address*_____
*City*_____ *State*_____

SM-29

(Use Key # C-9 on Inquiry Card on page 11)

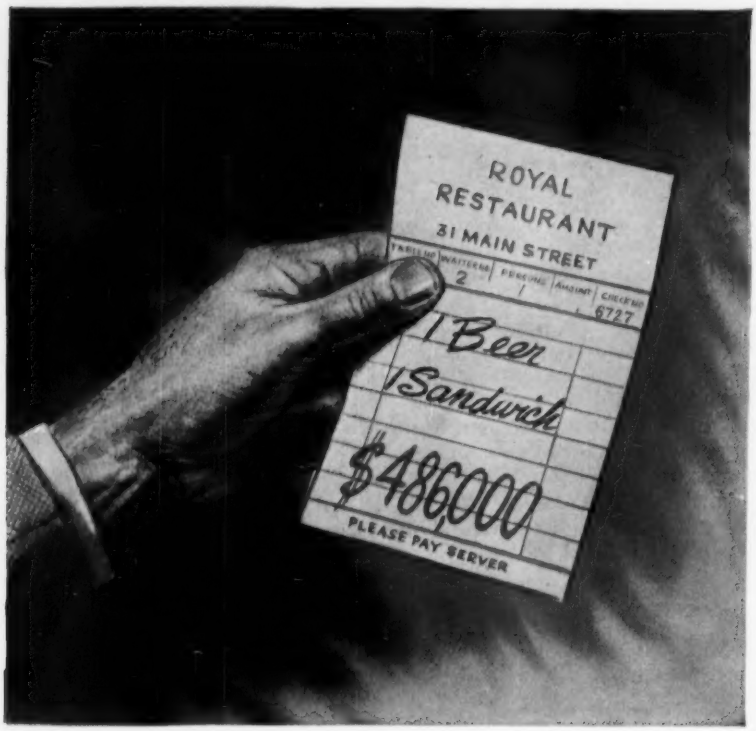
came paralyzed from the treatment. This unexpected reaction induced the taking of further x-rays of his back. He was found to be suffering from a metastatic neoplasm from which he died shortly after an operation. There was medical opinion that the treatment for his original injury progressed the disease. This view was accepted by the compensation board in granting benefits to the decedent's widow and child and was affirmed by the court.

Sampson v. Alco Products, Inc.; New York Supreme Court, Appellate Division, Third Judicial Department. No. 343. November 10, 1958.

OCCUPATIONAL DISEASE—Varicose Veins—Aggravation of Pre-Existing Condition

A seventy-three year old part-time employee was not entitled to compensation since varicose veins of the legs were held not to be occupational in nature. The claimant alleged that his work aggravated a pre-existing varicose vein condition. The court affirmed the compensation board's holding that the claimant did not suffer from an occupational disease since his disability was caused by an aggravation of the condition which was not occupational in nature. Affirmed.

Nussbaum v. Mercury Messenger Corporation; New York Supreme Court, Appellate Div., Third Judicial Department. No. 745. November 10, 1958.



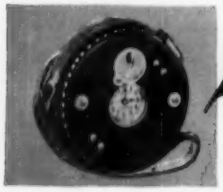
Beer and a Sandwich — $486,000

This is documented fact. An Ohio chemical plant guard had a picnic: he was unsupervised by a watchclock. One night he went to a nearby restaurant for a sandwich and a glass of beer. When he returned he found the building in flames...

Total loss—$486,000.

For dependable plant protection, it is essential that your watchman is supervised by a DETEX GUARDSMAN Watchclock. Through lonely nights, long weekends and holidays, the tape recording GUARDSMAN will keep him on his toes. Its tamper-proof, embossed record quickly exposes shirkers.

The GUARDSMAN'S extra-capacity tape saves you overtime—makes it unnecessary for a supervisor to return on Saturday and Sunday just to change a 24-hour dial. Write today for complete information, no obligation.



DETEX
WATCHCLOCK CORPORATION
Dept. SM-3 76 Varick Street, New York 13, New York

Find Your Nearest DETEX Inspector in The Yellow Pages

The Guardsman—and all DETEX dial-type clocks—are approved by Factory Mutual and Underwriters Laboratories. Their use often reduces insurance premiums.

(For details, use Key # C-10 on card on page 1)

N.Y. Safety Convention

Eight thousand safety experts and accident prevention workers from all over the nation will meet in New York for five days, starting April 13, in an effort to reduce the annual accident toll of 95,000 deaths, one hundred times as many disabling injuries, and economic loss estimated at more than $11 billion.

New York's 29th annual Safety Convention and Exposition will be held in the Hotel Statler under the sponsorship of the Greater New Work Safety Council. There are sixty-five cooperating agencies, among them the Army, Navy, Air Force, Coast Guard, Atomic Energy Commission, Red Cross, municipal and state governments, automobile clubs, insurance firms, railroad and ship operators, aviation, civic and other associations.

Seventy-two sessions will be held, covering almost every phase of accident prevention. More than 200 talks will be given and papers read by engineers, scientists, law enforcement officers, traffic experts, educators, home-makers, industrialists and Government officials.

New York City will officially observe "Greater Safety Week" during the convention period in welcome to the accident prevention workers and to emphasize the responsibility of the individual for his own safety and that of others. The Exposition will display new developments in safety devices, protective equipment, occupational and driver-testing devices, and other aids to accident prevention.

Please key # 29 on inquiry card on page

industrial hygiene

Radioisotope Training Assistance

John A. McCone, Chairman of the Atomic Energy Commission, has announced establishment by the Commission of a new program of assistance to colleges and universities for education and training in radioisotope principles and technology.

The purpose of the program, which is one phase of a Commission effort to foster widespread use of radioisotopes, is to increase the number of scientists, engineers and technicians qualified to contribute to and support the growing industrial use of radioisotopes and nuclear radiation.

The new program provides for direct financial assistance to colleges and universities in obtaining demonstration apparatus, student laboratory equipment and training aids needed to offer adequate laboratory course work in radioisotope technology. Examples of apparatus and equipment available under the program are:

ionization chambers;
scintillation counters;
scalers and ratemeters;
radioactivity standards;
Geiger-Mueller counters;
gas flow counters;
pulse analyzers;
radiation sources;
training aids illustrating industrial applications of isotopes; and equipment for the safe storage, proper handling and disposal of radioactive materials.

Requirements for submission of proposals for equipment grants under this program and the criteria used in evaluating proposals may be obtained from the Director, Office of Isotopes Development, U. S. Atomic Energy Commission, Washington 25, D. C., to whom proposals should be addressed.

This new program is offered in addition to the Commission's present assistance under its training, education and information programs. The Commission presently makes available to educational institutions without charge fuel elements for research reactors and subcritical assemblies, lends radioactive source and special nuclear materials, and makes equipment grants to be used in nuclear engineering technology and life sciences courses. In addition, the Commission awards yearly a number of fellowships in nuclear science and engineering, radiological physics, industrial hygiene and industrial medicine, and operates a number of training programs in atomic energy technology for students and teachers. These training programs are conducted at the Oak Ridge Institute of Nuclear Studies, the International School of Nuclear Science and Engineering at the Argonne National Laboratory, and the Summer Institutes for Engineering College Faculty at Brookhaven and Argonne National Laboratories. The Commission also assists in the sponsorship of special summer courses for high school science teachers.

"Sone" Ratings for Noise

The annoying and occasionally harmful clatter of industrial noises is an unwanted by-product of today's mechanical progress. In the execution of noise control programs it is necessary to (a) measure sound, (b) know maximum allowable noise limits, (c) design noise absorbing or reducing methods, and (d) predict noise increase when new equipment is installed.

Although the first three steps have been simplified by modern research, the fourth has remained a complicated procedure because of awkward, inaccurate measuring systems and a series of obscure formulas.

However, acoustical engineers have recently developed the "sone" rating system, which not only rates the sound pressure level but also takes into account the effect of frequency on the human ear. This single figure, numerical rating can now be manipulated as easily as kilowatts in the design of industrial and commercial buildings. Truly relative terms are now available under which 10 sones is twice as loud as 5 sones and half as loud as 20 sones.

U. S. fan manufacturers have been among the first to switch from decibel to sone ratings, and the system is now being recommended for all manufacturers of noise-producing equipment.

inside a modern medical

Careful planning and the latest equipment produce a medical facility preventive medicine.

An expanded, remodeled, and replanned dispensary recently completed at the Canton Plant of The Timken Roller Bearing Company ensures employees of adequate medical care in one of the most modern industrial medical departments in the area. The floor plan emphasizes patient privacy, simplicity in function and design, and compactness.

The dispensary is tailored to fit the needs of the two main functions of the Medical Department; (1) Active medical care including the rehabilitation of patients requiring physiotherapy treatment, (2) Preventative medicine.

A canopied entrance to the active medical section leads directly to the waiting room and nurses' station insuring prompt reception of employees. Next to the nurses' station are the office of the medical secretary and the medical record room.

Convenient to the entrance are the operating room (Figure 1.) and the medical emergency room. The emergency room, equipped with a portable resuscitator, emergency medications, and a multi-purpose stretcher cart, is for the care of acutely ill patients. It is near the nurses' station to enable close observation of the seriously ill patient. The operating room is used for minor surgery. It is equipped with an overhead surgical light, operating table, surgical instruments, medicine cabinets, and instrument sterilization facilities. A facility available is an electrical locator used to pinpoint the position of metal objects lodged in the body.

The general treatment area (Figure 2.), located in the center of the active medical aid section, is designed for treating minor ailments. A stainless-steel-topped dressing table, accessible from all four sides, contains stock medicines, bandages, and tape dispensers. Four patients at a time can be treated here. An adjacent drinking fountain has a spigot for warm as well as cold water.

Grouped around the general treatment area are five individual rooms containing hydrotherapy facilities mainly for the treatment of hand and foot injuries. Purpose of the individual rooms is for privacy during examination and treatment. One of these rooms, larger than the others, has additional equipment for the treatment of eye, ear, nose and throat cases. (Figure 3.) It is also used as a diagnostic area for examining employees returning to work following an illness, for applying larger dressings and removing sutures, and for applying and removing of plaster casts and splints. Two stainless steel dressing carts, stocked with bandages and medicines, can be moved from room to room for dressing injuries.

A two-bed ward with separate lavatory and subdued lighting serves primarily as a resting place for

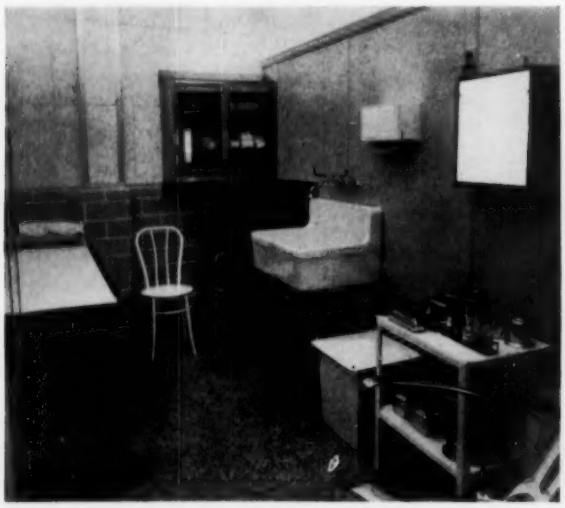


Fig. 3 One of individual treatment rooms is larger, includes additional equipment for treating ear, eye, nose, throat cases.

Fig. 4 Physiotherapy room is equipped with mechanized whirlpools, ultrasonic therapy machine, heat lamps, exercise bars.

facility

that really *functions* for first aid and

Fig. 1 The operating room, used for minor surgery, contains sterilizing facilities and tools, operating table, resuscitator.

patients. The room can be divided by a sliding partition. Near the central treatment area is the physiotherapy room (Figure 4.) containing such modern equipment as mechanized whirl pools, ultrasonic therapy machines, a hydrocolator, heat lamps and exercise bars. All electrical therapy equipment is controlled by automatic timers.

The completely lead-lined X-ray room, located between the active medical aid section and the preventative medical section, can perform fluoroscopic and diagnostic X-rays. (Figure 5.) A dark room is equipped to develop X-rays.

Preventive Medical Section

A separate entrance leads to the six-room suite of the preventative medical section, which contains standard diagnostic and laboratory equipment. Here is located a laboratory, sound proof audiometric room, physician's office, lavatories, and waiting room. A cardiogram and vision tester are the major items of equipment. Complete facilities for the dispensing of prescription and non-prescription safety glasses by a registered optician are part of the preventative medicine section. (Figure 6.)

Other improvements in the new dispensary include

(Continued on page 42)

Fig. 2 Centrally located general treatment area has stainless steel-topped dressing table, stock medicines, bandages.

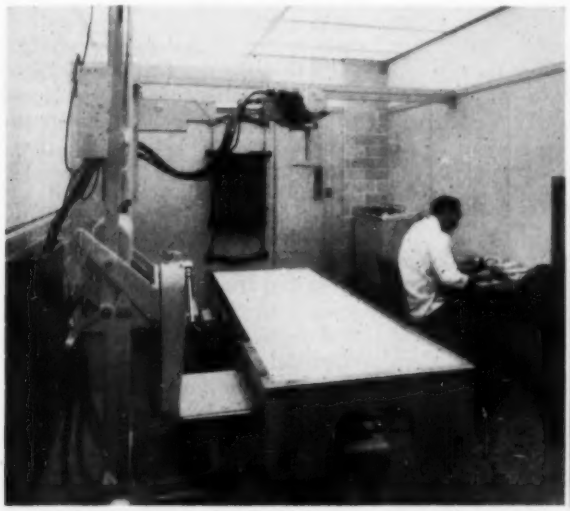
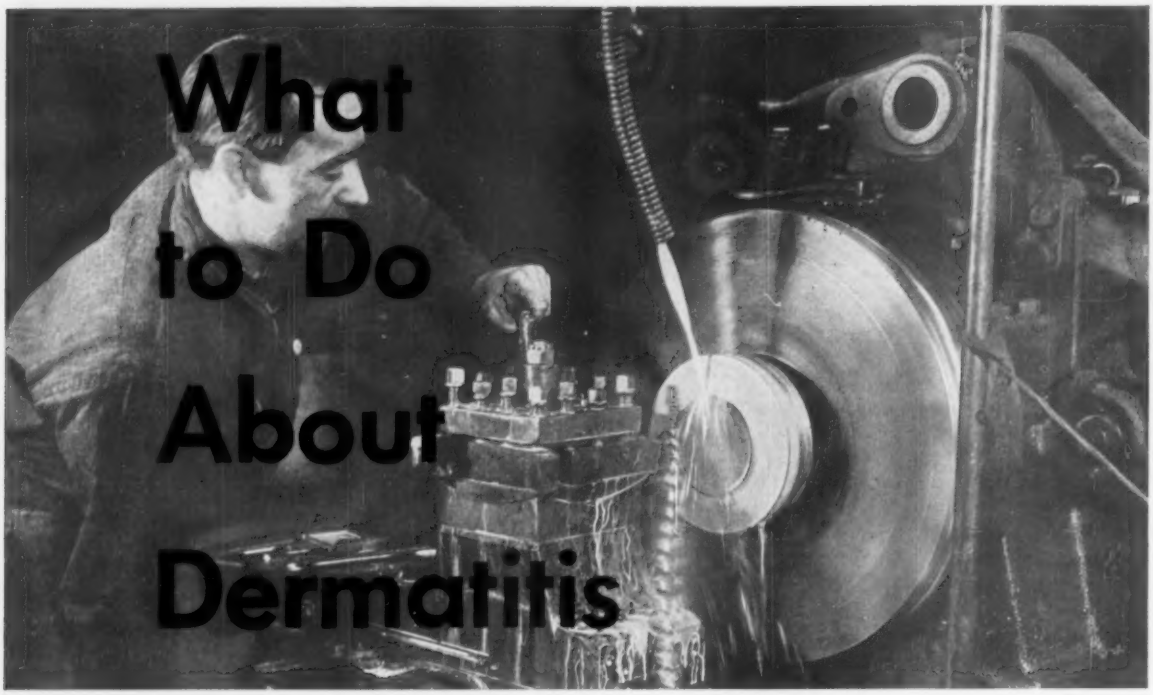


Fig. 5 The completely leadlined X-ray room confines radiation exposure to that area. At right, film storage racks.

Fig. 6 A registered dispensing optician fits employees with safety glasses from new combination office and laboratory.



What to Do About Dermatitis

About two-thirds of all the industrial diseases reported to State Compensation Boards are inflammations of the skin. The actual ratio of dermatitis to other industrial diseases is particularly high because only those cases of dermatitis are reported to Compensation Boards which incapacitate the worker for one week or longer. By far the large majority of cases of industrial skin diseases are not serious enough to be reported to Compensation Boards. Even a minor irritation of the skin impairs the efficiency of the worker who may lose time by going to the plant doctor or nurse for treatment. It has been estimated that the average cost in medical treatment and compensation is about $300 for each case reported to Compensation Boards and that the annual loss from industrial dermatitis in the United States is more than one hundred fifty million dollars.

Origin of Dermatitis

Although many workers suffer with inflammation of the skin caused by their occupations, it should be borne in mind that all skin diseases occuring among industrial workers are not necessarily caused by their industrial environments.

SKIN PROTECTION SERIES
other articles April & May

Industrial occupation usually involves only 40 hours of the 168 hours of a week. The worker spends the other 128 hours away from his industrial environment and may encounter skin irritants not at all connected with his employment. Poisonous plants on picnics, solvents and paint thinners while working in his home and many other skin irritants can cause inflammations of the skin which are not different in clinical symtoms and appearances from industrial dermatitis.

Besides this, diseases of the skin occur among the general population which have no relation to industrial dermatitis but which may be mistaken for industrial dermatitis by the worker and maybe even by the general practitioner. Such acute non-industrial skin diseases as Impetigo, Shingles (Herpes Zoster), Hives, (Urticaria) and Barber's itch (Sycosis barbae), as well as such chronic skin diseases as Dermatitis Herpetiformis, Lichen Planus, Psoriasis, etc. have been mistaken for industrial dermatitis.

Get the Case's History

In order to establish the fact that a worker's skin trouble is of possible occupational origin it must be shown:

(1) that the worker did not have dermatitis before he started on his occupation;

(2) that the dermatitis developed while the patient was working and not while he was away from the job;

(3) that other workers on the same or similar jobs are or have been similarly affected;

(4) that the worker is exposed to known irritants or sensitizers, or that he was working with a new chemical or a new process when he developed or shortly before he developed the dermatitis; and

(5) that the dermatitis becomes worse while the patient is at work and improves when he is away from work.

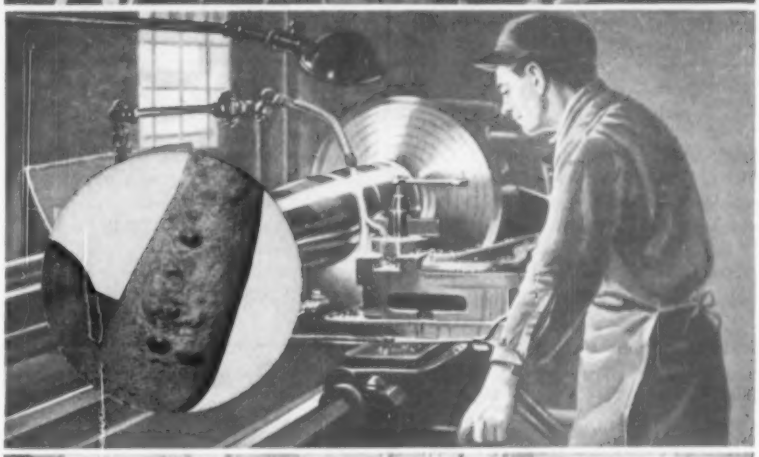
Industrial dermatitis usually occurs on parts of the body which are exposed to the irritants. These parts are usually the hands, forearms and face. If, however, the exposure is to irritants, dust, fumes or vapors which saturate or penetrate the clothing, covered parts of the body may also be affected. Oils may saturate the trousers and cause dermatitis of the thighs. Dust may enter at the waist line and cause dermatitis of the abdomen. The friction of soiled sleeve ends and collars may cause dermatitis at the wrists and neck. In general, industrial dermatitis occurs on the anterior parts of the body because workers usually face their jobs. For this reason it is exceptional to find industrial dermatitis on the back of the body below the neck. Studies have indicated that dermatitis is most prevalent among workers handling metals and those on heavy machinery. It is also very common to many phases of the food industry.

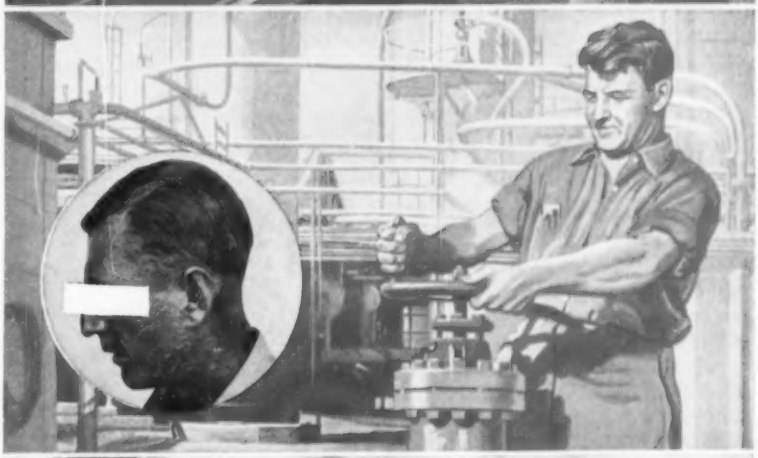
Appearance of the Lesions

Highly concentrated irritants will cause ulcers if they are permitted to remain on the skin. If they are on the skin only a short time or in low concentrations, they cause redness, swellings and blisters, depending on the time and concentration. Dermatitis from allergies to various substances also causes this type of inflammation. When this type of inflammation (the acute Eczematoid type) is found it gives no clue to the actual irritant.

However, many irritants produce more or less characteristic types of dermatitis on certain parts of the body. For instance, inflammation around the nails (Paronychia) and erosion and loosening of the nails (Onycholysis) are characteristic industrial lesions among fruit and vegetable canners. Acne-like lesions and inflammation around the hairs of the arms and thighs are characteristic industrial skin lesions among those in contact with coal tars, petroleum oils and among machinists who work with cutting oils.

Acne-like lesions and small straw colored elevations (cysts) on the face, neck, arms and body are characteristic industrial lesions among





workers handling products containing the solid chloro-naphthalenes, diphenyls, phenols and benzols. Warty growths and skin cancers may be of industrial origin among petroleum refinery workers, paraffin pressmen, and those coming in intimate contact with the heavy coal tar distillate residues, such as wood preserving oils and pitch. Handlers of hydroscopic chemicals such as sugar, salt and lime may develop dry, scaly-fissured palms. Workers who are excessively exposed to the sun, such as agriculturalists and merchant seamen, may develop a raised freckle-like condition (Keratoses), excessive pigmentation and cancers of the exposed skin, the face, neck, hands and arms.

Prevention of Dermatitis

Industrial dermatitis can be prevented in a number of ways depending on the varying situations. Conditions may call for the elaborate installation of special exhaust systems, the use of respirators and other special equipment, or simply an educational program consisting of instructing employees in how to avoid certain skin hazards found in their work.

Personal cleanliness is the prime factor in controlling industrial dermatitis. Industrial physicians have gone on record from time to time by stating that **over 90 per cent of the dermatitis cases found in a great number of industrial plants could have been prevented by management supervision and instruction, and by supplying proper cleansing materials and methods.**

Occupational skin diseases often manifest themselves in those male and female workers who find it difficult to remove certain chemicals and other materials with which they have been working during the day. Residues from these irritating compounds are very often left on the skin and carried home by the worker. They become imbedded in the skin and lead to lesions and other forms of irritations, which might very well have been avoided at clean-up time. Important, also, are the cleansing methods employed. Irritating chemicals and other materials may be removed by harsh, strongly-alkaline or abrasive cleaners which

What's YOUR

The three general types of protective

1. WATER RESISTANT . . . . .
2. SOLVENT RESISTANT . . . .
3. DUST RESISTANT . . . . . .

INDUSTRY	WORKING CONDITIONS
Machinists or Steel Workers	**1. Use of cutting oils or cooling compounds.**
Iron and Steel Mills	**1. Mixing the charge that goes with the furnace.** **2. Around Bessemer converters and open hearth furnaces.** **3. Heat treatment of steel "case hardening."** **4. Steel removed from molten cyanide or the nitric bath and plunged into the quenching oil.**
Rust Proofing	**1. Iron and steel parts are coated temporarily to keep from rusting during manufacture.** **2. Parkerizing, Anodizing, Chromedizing, Carburizing.** **3. Galvanizing** **4. Electroplating**
Meat, Fish and Food Preserving	**1. Slaughter houses—workers handling diseased carcasses, intestines, etc.** **2. Fish handlers and fishermen.** **3. Salting and curing fish.**
Fruit and Vegetable Handlers	**1. Workers handling fertilizers, certain irritating insecticides and fungicides.**
Natural Resins	**1. Workers handling natural waxes.** **2. Workers handling Colophony or Gum Resin and wood resin in the manufacture of soaps, varnish, waxes, brake linings, etc.**
Synthetic Resins	**1. All phases of manufacture around condensation kettles, curing ovens, molding rooms, etc.**

(CHART CONTINUED ON PAGE 38)

Dermatitis Problem?

skin creams listed under "Preventive Measures" are:

for protection against acids, alkalis and other skin irritants contained in water solution.
for protection against petroleum hydrocarbons, chlorinated hydrocarbons and other organic solvents.
for protection against irritating dusts, greases, grime, fibre glass and other solid or semi-solid irritants.

TYPE OF DERMATITIS	PREVENTIVE MEASURES
1. Acne, boils, abscesses due to defatting of the skin.	1. Use a cutting oil additive to inhibit bacteria and prevent decomposition of soluble oils. Use appropriate water-resistant or solvent-resistant protective cream, according to the water content of the cutting oil. Use a neutral lanolined or sulphonated-oil skin cleanser.
1. Dermatitis of hands and forearms due to the lye in the charge. 2. Maceration of the skin due to perspiration from the heat—known as "Intertigo." 3. Dermatitis of the hands and forearms caused by molten sodium cyanide or sodium carbonate and sodium dichromate. 4. Splashing of quenching oil over the skin and clothing.	1. Use a solvent resistant cream on the hands and arms several times daily, washing with a neutral lanolin content skin cleanser before each application. 2. Use a lanolin-base or sulphonated-oil skin cleanser and then apply a solvent resistant barrier cream several times daily. 3. Use a solvent-resistant protective cream several times daily and wash with neutral lanolined or sulphonated-oil cleanser before each application. 4. Wear liquid-proof aprons and sleeves. Use solvent-proof barrier. Wash splashed oil off the skin.
1. Dermatitis of hands and arms due to phenolic resins, petroleum oils and greases. 2. Skin irritations from exposure to chromic acid and bichromates. 3. Fumes from zinc chloride. 4. Skin irritations due to pickling solutions of sulphuric or hydrochloric acid with sodium di-chromate, chromic acid, cadmium oxide, etc.	1. Use solvent-proof barrier cream on skin. 2. Use water-acid resistant cream between washings with neutral lanolin-content or sulphonated oil cleanser. 3. Use water-acid resistant protective cream. 4. Wear liquid-proof apron and sleeves. Use water-acid resistant cream and wash with neutral lanolined or sulphonated-oil cleanser several times daily.
1. Erysipeloid and Hog Itch, Sheep Pox, Anthrax, etc., from handling of animals. 2. Skin infections ("Fish Poisoning" or "Durry Poisoning") due to punctures from sharp fins and bones. "Red Feed Poisoning" from digestive juices of mackerel. 3. Dermatitis of hands and arms due to briny solutions.	1, 2, 3. Wear liquid proof aprons and sleeves. Use sulphonated-oil skin cleanser several times daily. Use water-resistant cream.
1. Dermatitis of the hands and arms due to ingredients and also the fruit and vegetable juices themselves.	1. Wear liquid-proof aprons and sleeves. Farmers should use protective creams on the hands, face and arms (either water-resistant or solvent-resistant, according to whether the irritant is water-based or solvent-based). Canners and packers should use a sulphonated-oil skin cleanser several times a day.
1. Dermatitis of the hands and arms from irritants and sensitizing chemicals found in many natural resins. 2. Skin irritations from the abetic acid in pine wood.	1. Wear liquid-proof aprons and sleeves. Use dust-resistant protective cream and lanolined cleanser several times daily. 2. Wash hands and arms frequently with lanolin-base cleanser. Use solvent-resistant barrier cream. Wear liquid-proof aprons and sleeves.
1. Skin irritations due to phenols, cashew nut's shell oil, aldehydes, styreal, amyl alcohol, hexamethylentetramine, formaldehyde fumes, etc.	1. Use solvent-resistant barrier cream on face, neck and arms several times daily. Use a lanolined skin cleanser for repeated washings.

(CHART CONTINUED ON PAGE 38)

contain grit and sand, or by harmful solvents and bleaches which, themselves, may cause dermatitis.

The problem, therefore, is that of providing thorough means of cleanliness which will not, in themselves, prove harmful to the worker.

The following are basic requirements for any industrial skin cleanser:

1. The cleanser should be soluble in hard, soft, cold, or hot water.

2. It should remove fats, oils and other foreign soil without harming the skin.

3. It should not extract from the skin its natural fats and oils.

4. It should not contain harsh abrasives or irritant scrubbers which not only will injure the skin, but may also clog the plumbing.

5. It should flow easily through soap dispensers.

6. It should not deteriorate in storage or become insect infested.

Sensitive Skin

Even the mildest of soaps will affect some skins. There are many workers who cannot stand frequent washings because of their naturally dry-fissured skin. Such workers who are soap or alkali-sensitive or who already have chronic eczemas should be provided with cleansers other than ordinary soaps.

For those persons with such allergic skin conditions who are compelled to work with solvents, strong acids, alkalis, synthetic dyes, phenols and similar irritants, sulphonated-oil cleansers that emulsify dirt and grease without defatting the skin are available.

Following is an excerpt from United States Public Health Service, Public Health Report 56:1788, September 5, 1941, Reprint No. 2311 written by Dr. Louis Schwartz:

"Harsh skin cleansers have frequently been found to be the actual causes of occupational dermatitis which, before investigation, seemed to have been caused by the chemicals manufactured or handled. Those workers who handle chemicals which are difficult to remove from the skin by ordinary toilet soaps are the ones mostly affected by dermatitis caused by skin cleansers. Synthetic dye workers, printers, dyers, workers with coal tar, pitch, asphalt, creosote oil, petro-

INDUSTRY	WORKING CONDITIONS
Plywood	**1. In most phases of manufacture. and glue tapes to wood sheets. 2. Workers on presses. 3. Workers who machine, sand paper and polish plywood.**
Natural Rubber	**1. Workers who mix various chemicals into latex to make it serviceable. 2. Workers at the weighing and issuing departments.**
Synthetic Rubber	**1. Workers cleaning. 2. Workers weighing and dispensing the chemicals from which synthetic rubber is made.**
Rayon	**1. In most places of manufacture.**
Lumber	**1. Lumberjacks encounter irritant tree saps. 2. Workers handling Coco Bolo, Redwood, Mahogany, Boxwood, Stainwood, Brazilian Walnut, etc. 3. Workers engaged in wood preserving.**
Building Trades	**1. Workers carrying cement bags, cement mixers, brick layers, plasterers, etc.**
Photographers and Photoengravers	**1. Workers handling developers, fixers, and plate sensitizers.**
Synthetic Dyes	**1. Handling of Chemicals. 2. Working on grinders and flakers. 3. Repair men working around kettles, vats, underground pipes, conduits, etc.**
Coal Tar and Derivatives	**1. Workers at coke ovens. 2. Workers coming in contact with highboiling fractions of coal tar as well as pitch residue.**
Sugar and Candy	**1. Many phases of sugar manufacture. 2. Candy workers are subject to many of the same infectious conditions as sugar handlers.**

TYPE OF DERMATITIS	PREVENTIVE MEASURES
1. Dermatitis of hands and arms. 2. Dermatitis of the face due to fumes from formaldehyde and uncured glue. 3. Dermatitis of skin contracted by the dust of dry glues.	1. & 3. Wear protective aprons and sleeves. Use a lanolin-content skin cleanser frequently and apply dust-resistant protective cream on hands, arms and face. 2. Use water-resistant protective cream. Wear protective aprons and sleeves.
1. Dermatitis of hands and arms due to accelerators and anti-oxidants added. 2. Dermatitis of hands, arms, face and neck due to the dusts of rubber compounds.	1. Use a solvent-resistant protective cream on exposed parts. Wash frequently with a sulphonated oil cleanser. 2. Use a dust-resistant protective cream.
1. & 2. Dermatitis of the hands, arms and neck due to dust and chemicals added.	1. & 2. Use dust-resistant protective cream on exposed parts. Wash frequently with sulphonated oil skin cleanser.
1. Dermatitis of exposed parts due to strong alkalis, sodium hydroxide, carbon bi-sulphide and cellulose xanthate. From de-sulphuring solutions, glacial acetic acid, acetic anhydride, sulfuric acid, etc.	1. Wear liquid-proof aprons and sleeves. Use a water-resistant barrier cream for aqueous solutions; and solvent-resistant cream for solvents. Wash frequently with sulphonated-oil skin cleanser.
1. Irritations to exposed skin. 2. Irritations to exposed skin may also come from alkalis, bichromates and synthetic dyes used to give artificial coloring. 3. Dermatitis due to creosote, zinc chloride, mercuric chloride, chlorophenols, etc.	1. & 2. Use a water-resistant protective cream. 3. Wear liquid-proof aprons and sleeves. Use solvent-resistant creams on hands and arms. Wash frequently with a lanolin-content skin cleanser.
1. Dermatitis of hands, arms and face from cement dust due to the lime in the cement.	1. Use a dust-resistant barrier cream on the face, neck, arms and chest, with repeated washings using a lanolin-base skin cleanser.
1. Dermatitis of the hands, face and forearms due to metol, paraformaldehyde, hydroquinone, bichromates, etc.	1. Wear liquid-proof aprons and sleeves. Use a water-resistant protective cream. Wash several times daily with a lanolin cleanser or sulphonated-oil skin cleanser.
1., 2., & 3. Dermatitis and systemic poisoning from inhaling, ingesting or skin-absorbing many inorganic acids, alkalis, etc.	1., 2., & 3. Use a water-resistant or solvent-resistent barrier cream. Use lanolin-content or sulphonated-oil skin cleanser for daily washing. Wear liquid-proof aprons and sleeves.
1. Dermatitis of the skin due to dust from coal, coke and coal gas. 2. Acne, wart-like lesions, skin cancers and pigmentations of the exposed skin, or other parts if tar-soaked clothing is worn.	1. Use a dust-resistant protective cream on face, neck and arms. 2. Use a solvent-resistant protective cream.
1. Dermatitis of the hands and arms, and inflammation of the finger nails. 2. Chocolate dippers may get dermatitis of the fingers. Fruit juices, flavoring agents and essential oils may cause dermatitis of the hands and arms.	1. If around acids or alkalis, use a water-resistant protective cream. Otherwise use a dust-resistant cream. Wear liquid-proof aprons and sleeves. Use a skin-cleaner containing lanolin or else a sulphonated-oil cleanser, for repeated washings during the day. 2. Use a solvent-resistant protective cream.

leum oils, greases, and soot are apt to use, for cleansing their hands after work, strongly alkaline and abrasive soaps which abrade and dissolve the superficial epithelium of the skin, volatile solvents which defat the skin, and powerful bleaching agents which cause chemical changes in the epithelium by chlorination and oxidation.

"Sulfonated oils, especially sulfonated vegetable oils . . . have long been used in industry. Recently, sulfonated vegetable oils have been used in the treatment of dermatitis. Sulfonation of vegetable and mineral oils makes them emulsifying agents and they emulsify dirt and grease on the skin and help to cleanse it. Being miscible with water they can be used as skin cleansers and are of special value in that the sulfonated vegetable oils do not defat the skin."

Cutting oils or cooling compounds are frequently causes of dermatitis among machinists, metal workers, and others who are exposed to such materials. Cutting oils can be classified as soluble or insoluble. The soluble cutting oil is harmful to the skin and, when it contains harmful pathogenic organisms, may cause pimples, boils, acne and abscesses on the hands and arms. Soluble cutting oils become heavily infected with bacteria and have a foul odor due, in large part, to bacterial decomposition and the liberation of Hydrogen Sulfide and Sulphur Dioxide from the heat of the cutting operation.

A cutting oil additive is an odorless preservative which inhibits the growth of bacteria which are responsible for decomposition resulting in obnoxious odors and severe rancidity.

Because we know that industrial dermatitis which is attributed directly to rancid cutting oils is fathered by bacteria in the oils, the additive, when used according to directions, will help prevent the spread of industrial dermatitis.

The life of cutting oils has been greatly extended and actual cases are known where cutting oils which could ordinarily be used for only three days have remained workable for three weeks with the addition of cutting oil additives. This means that bacteria are inhibited to a great degree and that decomposition of the oil is therefore greatly retarded. This is also very important where local regulations provide for the disposal of spent cutting oils and where low bacteria counts are required before oils may be disposed of in public streams.

Protective Clothing

Leading doctors, safety engineers, public health officials and even workers themselves recommend the use of protective clothing whenever the hazards of occupational skin diseases are prevalent.

Such products, designed to help prevent industrial dermatitis, include protective aprons and arm guards which provide maximum safety against acids, alkalis, grease and oils. Because of its great protective qualities, this clothing is ideal for men and women in all industries where this type of protection is required without having to sacrifice worker on-the-job efficiency.

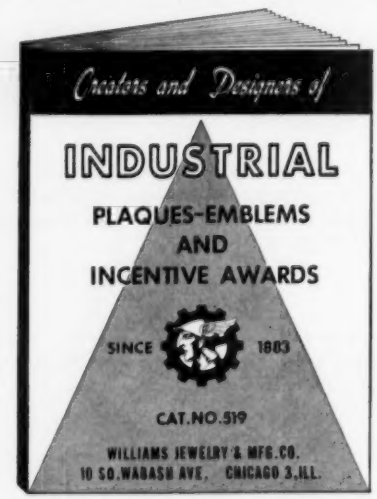
It is only natural that, as technological improvements with new chemicals and other materials are introduced into industry, the incidence of industrial dermatitis increases proportionately. It is unfortunate that it is the worker who has to suffer until each new problem is resolved and until effective protective measures can be provided.

The industries represented in the accompanying chart, "What's YOUR Dermatitis Problem?", are responsible for a very large portion of industrial skin diseases in the United States and Canada. It is hoped that this presentation of their most common types and causes, along with recommended preventive measures, will serve to help industries establish sanitation programs which will help reduce the incidence of industrial dermatitis. It should be noted that the preventive measures are to reduce dermatitis. Workers may require other safety equipment, such as goggles or respirators, for protection against other hazards.

Pictures and chart by courtesy of West Chemical Products, Inc.

OUR NEW 1959 EDITION . . .
40 PAGE CATALOG of
Emblems · Plaques · Trophies · Incentive Awards

NEW!
IDEAS FOR SAFETY PLAQUES TROPHIES and INCENTIVE AWARDS



FREE!
THE ONLY CATALOG OF ITS KIND!
GET YOUR COPY TODAY!
KEEP IT HANDY TO SOLVE YOUR AWARDS PROBLEMS

JUST OFF THE PRESS!

WILLIAMS JEWELRY & MFG. CO.
10 S. WABASH AVE., CHICAGO 3, ILL.
SILVERSMITHS BUILDING — CEntral 6-5018

(For details, use Key # C-11 on card on page 1)

SAFETY EQUIPMENT FOR HANDLING

——Benzyl Chloride

The following personal protective equipment should be used as indicated in handling benzyl chloride.

Respiratory Protection

Severe exposure to benzyl chloride may occur in tanks during equipment cleaning and repairs, when decontaminating areas following spills, or in case of failure of piping or equipment. Employees who may be subject to such exposures should be provided with proper respiratory protection as described below:

Note: Respiratory protective equipment must be carefully maintained, inspected, cleaned and sterilized at regular intervals, and always before use by another person.

(a) Self-Contained Breathing Apparatus which permits the wearer to carry a supply of oxygen or air compressed in the cylinder, and the self-generating type which produces oxygen chemically, allow for greater mobility. Cylinder oxygen should not be used in tanks or other confined spaces.

(b) Positive Pressure Hose Masks supplied by externally lubricated blowers. Since these masks depend on remote air supply, they should be used only where conditions will permit safe escape in the event of air supply failure. Care must be taken to locate the blower air source in an area which is free of air contaminants.

(c) Air-Line Masks supplied by compressed air are suitable for use only where conditions will permit safe escape in case of failure of the compressed air supply. Such masks should be used only in conjunction with a suitable reducing or demanding-type valve, excess pressure relief valve, and filter. Externally-lubricated compressors are preferred for air supply. If plant compressed air is used it should be checked frequently to make certain that harmful gases from the decomposition of the lubricating oil used in the compressor, or impure air supply, are not present.

(d) Industrial Canister-Type Gas Masks, equipped with full face pieces and approved by the U. S. Bureau of Mines, fitted with the proper canister for absorbing benzyl chloride vapor, will afford protection against concentrations of benzyl chloride not exceeding 2 percent by volume when used in accordance with the manufacturer's instructions. The oxygen content of the air must not be less than 16 percent by volume. The masks should be used for relatively short exposure periods only. They may not be suitable for use

---

The above material is from the "Chemical Safety Data Sheet for Benzyl Chloride" published by the Manufacturing Chemists' Association, Inc. The complete data sheet, in addition to this outline of personal protective and fire fighting equipment for use with benzyl chloride, covers the properties, hazards, engineering control, handling and storage, tank equipment cleaning and repair, medical management, and first aid.

Copies of the complete data sheet (SD-69) are available at 30¢ from: Manufacturing Chemists' Association, Inc., 1825 Connecticut Ave., N. W., Washington 9, D. C.

in an emergency since, at that time, the actual vapor concentration is unknown and it may be very high. The wearer must be warned to leave the contaminated area immediately on detecting the odor of a harmful vapor; this is an indication that the mask is not functioning properly or that the vapor concentration is too high.

Note: Where carbon monoxide may be encountered in addition to benzyl chloride, the mask should be equipped with an "all purpose canister" as approved by the U. S. Bureau of Mines.

(e) Chemical Cartridge Respirators fitted with a cartridge designed for acid and organic vapor may be used to avoid inhaling disagreeable but relatively harmless concentrations of benzyl chloride vapor. These respirators, however, are not recommended for protection where toxic quantities of benzyl chloride may be encountered.

Eye Protection

Chemical Safety Goggles: Cup-type or rubber framed goggles, equipped with the approved impact resistant glass or plastic lenses, should be worn whenever there is danger of benzyl chloride coming in contact with the eyes. Goggles should be carefully fitted to ensure maximum protection and comfort.

Spectacle-Type Safety Glasses: Metal or plastic rim safety spectacles with unperforated side shields which can be obtained with prescription safety lenses or suitable all-plastic safety goggles may be used where continuous eye protection is desirable, as in laboratories. These types, however, should not be used where complete eye protection against benzyl chloride is needed.

Face Shields: Plastic shields (full length, eight inch minimum) with forehead protection may be worn in addition to chemical safety goggles where complete face protection is desirable. Chemical safety goggles should always be worn as added protection where there is danger of material striking the eyes from underneath or around the sides of the face shield.

Head Protection

"Hard" hats should be worn where there is danger from falling objects. If hard hats are not considered necessary, soft-brimmed hats or caps may be worn to give protection against liquid leaks and splashes.

Foot Protection

Leather or rubber safety shoes with built-in steel toe caps are recommended for workers handling drums and other heavy containers of benzyl chloride. Rubbers may be worn over leather safety shoes. Rubbers and shoes should be thoroughly cleaned and ventilated after contamination.

Body, Skin and Hand Protection

Sustained or intermittent skin contact with liquid benzyl chloride may produce marked irritation at the site of contact. It is imperative that contaminated clothing be removed promptly and laundered before re-use. Affected areas of the body should be flooded with liberal quantities of flowing water. As a general hygienic measure, facilities for personal cleanliness should be provided, and washing before lunch and at the end of the work day should be encouraged.

Clothing made of rubber and other impervious material may be worn to protect the body against benzyl chloride splashes. These garments must be cleaned inside and out each time they are used.

Fire Fighting

Water in spray form can be used to control and extinguish fires involving benzyl chloride. It is also effective in dispersing the vapors. Dry chemical and carbon dioxide are also suitable extinguishers.

Fire fighters should wear normal protective equipment, waterproof coats, boots, goggles and helmet. When fighting indoor fires, self-contained breathing apparatus is necessary. Outdoors this apparatus should be available and worn if needed.

Copyright 1957. Reprinted by permission of the Manufacturing Chemists' Association, Inc.

Inside A Modern Medical Facility

(from page 33)

adequate storage space for medical records, equipment and drugs, and private dressing and locker room facilities for Medical Department personnel.

The staff of the Medical Department is headed by a medical director. Aiding him are an examining physician, who heads the preventative medical program, a registered dispensing optician, an X-ray technician, 13 registered nurses, three nurses' aides and a medical secretary. There are two first aid stations centrally located at the Gambrinus Plants which are staffed by registered nurses.

Communication System

A combination of signal lights and soft-sounding bells can be used by patients in each room to summon a doctor or nurse. This communication system is supplemented by intro-departmental telephones. Should a power failure occur, an auxiliary unit switches on automatically to furnish illumination and power for equipment. The dispensary has a luminous ceiling and a terrazzo floor. The completely air-conditioned department has 3,600 square feet of floor space.

Treatment of employees by the Medical Department is confined to injuries or sickness occurring at work. In cases where illness or injury is not a result of work performed for the company, employees are instructed to see their private physician.

The new dispensary, the culmination of years of experience in the industrial medical field by the Timken Company, will provide the best possible medical service for all employees.

Achievements and Awards

Ten Fruin-Colnon Contracting Company employees received safety awards at the company's annual awards banquet in St. Louis, Mo., it was announced by John P. Soult, president. The company's division safety award went to the Building and Industrial Division.

The winners of the Fruin-Colnon National Awards were honored for significant contributions to the improvement and development of metropolitan areas, based on action programs, research, publications or a combination of these. The awards are administered by the National Municipal League and sponsored by Fruin-Colnon.

• • •

Ebasco's annual top Safety Award has been presented to Pacific Power & Light Company for achievement of an accident record 82.38 percent better than the national average for electric utilities. The company received a gold plaque in recognition of its outstanding safety performance from July 1, 1957 to June 30, 1958.

D. R. McClung, president of Pacific Power & Light, accepted the award on behalf of his company from H. H. Scaff, vice president of Ebasco Services Incorporated, engineering, construction and management consulting firm.

The next highest award, a silver plaque, was presented to Beeman Fisher, vice president of Texas Electric Service Company, for an accident record 79.76 percent below the national average for electric operations.

For establishing records better than 25 percent below the national average of their industries, achievement certificates were presented to nine other utility companies. Accepting these awards on behalf of their company employees were R. B. Wilson, president, Mississippi Power & Light Company; E. M. Naughton, president Utah Power & Light Company and The Western Colorado Power Company; S. V. O'Lenic, president, Chattanooga Gas Company, and W. L. Thrailkill, vice president, The Washington Water Power Company. Certificates were also awarded Mid South Gas Company, Public Service Company of Colorado, Escambia Chemical Company and West Tennessee Gas Company.

In the International Division, a gold plaque was presented by Mr. Scaff to G. L. Capwell, vice president and general manager of Empresa Electrica del Ecuador for first place with an injury index 90.85 percent better than the U. S. national average of the electric industry.

Ebasco's safety program also presents safety merit awards to any client company or construction project, or division thereof, that operates a million or more man-hours without a disabling injury during the award year. Fifteen of these awards were given to the following companies and projects: Texas Electric Service Co.—3 awards; Pacific Power & Light Co.—3 awards; Arizona Public Service Co.—3 awards; Texas Power & Light Co.—3 awards; Mississippi Power & Light Co.; Dave Johnston Steam Electric Plant of Pacific Power & Light Co.; Murray Gill Steam Electric Station of Kansas Gas and Electric Co.

The foregoing safety merit awards represented a total of more

A LIFESAVER FOR WORKMEN ON

- POLES
- BUILDINGS
- RADIO, TV, HIGHLINE TOWERS
- TANKS
- STACKS
- DERRICKS
- OR ANY OTHER HIGH PLACES

TULITO
SAFETY CLAMP
(Patented. Other Patents Pending)

LOCKS INSTANTLY!
Absolute Safety Assured

Forget the dangers of high climbing ...use TULITO SAFETY CLAMPS. Thousands are now in use on every type of structure.

FULLY APPROVED BY INDUSTRIAL COMMISSIONERS AND SAFETY ENGINEERS.

MEYER MACHINE, INC.
Red Wing, Minnesota

(Use Key # C-13 on Inquiry Card on page 1)

NEW GW

Wilkie

ANNOUNCES a BRAND NEW

SAFETY SPECTACLE

GW PLASTIC SAFETY

SPECTACLE SERIES

GW-10

Open frame spectacle, pink crystal color, produced to the highest optical standards. Uniform thickness and color from molded plastic. Reinforced bridge with extra large pads for greater wearing comfort. Face formed for added protection.

GW-25

Features more eye coverage with wide field of vision in the new "Squared Shape," accommodating the latest 5-7 interchangeable lenses. Lens channels are molded, insuring uniform size with even lens retention. Sideshields perforated for ample ventilation.

GW-40

Identical in design to GW-10 with exception of the "flat-fold" sideshield. Bent plastic shield permanently attached to temple for additional protection. Shields fold with temples. Transparent plastic shields allow for peripheral vision.

Prescription safety lenses are available in all styles.

When ordering, specify Model Number, with bridge size, lens size, type and color, and temple style and length.

Lens size:	44, 46, and 48 MM
Bridge size:	20, 22, 24 and 26 MM
Temple Style and Length:	
Cable:	6¼", 6½", 6¾", 7"
Spatula:	5½", 5¾", 6", 6¼"
Lens Type:	6.00 curve glass or plastic
Lens Color:	Clear or Sage Green (medium, dark, and extra dark), or - Didymium

WRITE FOR BULLETIN No. 10-A

WILKIE OPTICAL INC.

BARRINGTON, NEW JERSEY

DISTRIBUTORS INVITED

(Use Key # C-12 on Inquiry Card on page 1)

than 20 million man-hours of safe operation—over 10,000 man-years without a single disabling injury, Mr. Scaff pointed out.

• • •

The Memphis pulp plant of the Buckeye Cellulose Corporation has set a new world's record for the pulp and paper industries by operating since January 22, 1956 without a disabling injury. This surpasses the former industry record of 3,770,086 man-hours, which was set several years ago by the Dixie Cup Company at Easton, Pennsylvania. In recognition of this accomplishment, the Buckeye plant will receive a National Safety Council Award of Honor.

At a plant safety celebration, Mr. Charles A. Montague, Jr., Plant Manager, congratulated the employees on their new safety record. He pointed out that if the Buckeye plant had operated at the industry average during the period covered by the award, twenty-four employees would have suffered disabling injuries and three employees would have suffered death or permanent disability. He also stated that in view of Buckeye's safety record, employees were safer at work than they were in their own homes. He asked for continued cooperation in keeping the Buckeye plant as the industry's safest and set a new goal of five million man-hours. The Buckeye plant has previously set two world's records for the pulp industry.

Each of the 580 employees will receive an onyx handled letter opener from Buckeye in recognition of his contribution to the safety record. This letter opener adds to a desk set started at a former world safety record celebration.

Safety is part of the Industrial Relations work headed by Mr. E. R. Stevens. Mr. Obed Windham is Plant Safety Engineer.

• • •

Employees at the Aliquippa Works of Jones & Laughlin Steel Corporation have established a new all-time safety record of more than three million man-hours worked without a disabling injury, it was announced by Paul H. Devaney, Works Manager.

More than 14,000 employees at Aliquippa have worked without disabling accidents 44 days, or 3,100,000 man-hours, as of midnight Tuesday, January 13, 1959. The record performance is continuing, Mr. Devaney said.

The previous J&L record was held by employees at the Cleveland Works. In the period of December 11, 1948 to April 5, 1949, they worked 116 days, or 2,476,262 man-hours, without a disabling case.

Safety Training For Supervisors

A safety training course for supervisors is being sponsored by the Greater New Haven Safety Council in cooperation with the Industrial Management Club of New Haven, Conn. The general theme of the course will be cost reduction through accident prevention and will consist of three one-hour sessions on April 8, 15 and 22. Certificates will be issued to those attending all sessions.

The first session's subject will be "The Supervisors' Responsibility In Accident Prevention," with Russell DeReamer, Safety Manager of International Business Machines, as speaker. Alan L. Kling, Director of Loss Prevention for Olin-Mathieson Chemical Corp., will lead the second session on "Management's Responsibility In Accident Prevention." The last meeting on "Accident Prevention and Its Effect On Production Cost" will be headed by Dr. John V. Grimaldi, Consultant, Safety & Plant Protection, General Electric Co.

The meetings will be held at 7:30 P.M. at the Hillhouse High School Auditorium, Sherman Parkway, New Haven, Conn. The registration fee for the three sessions is $3. Further information about the course can be obtained from: R. M. Anderson, Anderson Associates, P. O. Box 6054, Hamden 17, Conn.

The Fire Equipment Manufacturers' Association, Inc., declared recently that the majority of industrial fires can be traced to four general causes: open flames and high temperatures; friction, electricity; and chemical reactions.

THE FIRE FRONT

U.S.-Canadian Fire Losses

Fire killed almost 1,000 people a month in the United States during 1958, according to the National Fire Protection Association. Monthly property losses ran to more than $100 million.

U. S. fire deaths for the past year totalled 11,500, according to preliminary estimates by the nonprofit organization's Fire Record Department. This was an increase of approximately 200 over 1957, but under the 12,100 record of 1954. The property loss total—a staggering $1,305 billion—was the highest in history. It was an increase of approximately $25 million over the 1957 figure.

Canada was able to reduce its fire deaths in 1958, but experienced an increase in property losses, the NFPA estimates show. Canadian fatalities totalled 620, a decrease of about 20 from the previous year. Property damage cost $180 million compared with a 1957 loss of approximately $139 million.

U. S. Losses

The 1958 United States property loss, $1,305 billion, includes $1,095 billion damage to buildings and contents. The balance of $210 million covers aircraft, motor vehicles, forest and other nonbuilding fires. Corresponding figures for 1957 were $1,068,115,000 and $211,811,000.

The 1958 Canadian property loss of $180 million includes $140 million damage to buildings and contents, and $40 million to forest fires alone.

The worst loss of life by fire in the U. S. during 1958 was the December 1 school tragedy in Chicago, which killed 90 pupils and 3 teachers.

But the same number of lives—93—were taken in individual fires over the 4-day Christmas holiday, the National Fire Protection Association points out.

An oil refinery in Signal Hill, Cal. on May 22 was the country's biggest in terms of property loss. Damage totalled about $9 million.

Canadian Losses

In Canada, the Montreal apartment house fire of November 9 took the largest loss of life, with 16 dead.

Losses may reach $3 million in an Ottawa explosion of October 25 and in a furniture warehouse fire of December 18 in Montreal.

NFPA Names 1958 Fire Contest Winners

Oshkosh, Wisconsin, and Oceans Falls, British Columbia, have been named grand award winners in the National Fire Protection Association's annual fire prevention contest for 1958.

The awards, for which more than 1500 entrants from the United States and Canada competed, are based on year-round efforts to reduce fires and to educate people in fire safety.

The Contest is sponsored by the National Fire Protection Association of Boston, a 17,100-member, non-profit, educational and engineering organization devoted to improving the protection of life and

(Continued on page 58)

Annual Fire Losses

Fire damaged or destroyed an estimated $1,056,266,000 worth of property in the United States last year (1958), the National Board of Fire Underwriters has reported. This is 3.2 percent more than that for 1957, when estimated monthly losses totaled $1,023,190,000.

According to Lewis A. Vincent, NBFU's general manager, estimated losses for December (1958), totaled $100,523,000, an increase of 40.5 percent over losses of $71,539,000 reported for November (1958) and an increase of 9.8 percent over losses of $91,519,000 reported for December, 1957. These estimated losses include an allowance for uninsured and unreported losses.

FIRE LOSS TABLE

Month	1958	1957	1956
January	$99,918,000	$115,272,000	$96,972,000
February	103,853,000	95,569,000	84,041,000
March	102,722,000	104,565,000	89,315,000
April	99,061,000	85,994,000	84,624,000
May	85,633,000	79,045,000	87,681,000
June	90,048,000	69,710,000	74,770,000
July	80,782,000	77,814,000	68,752,000
August	75,491,000	78,364,000	74,930,000
September	73,303,000	72,264,000	70,118,000
October	73,393,000	77,753,000	81,121,000
November	71,539,000	75,321,000	80,481,000
December	100,523,000	91,519,000	96,485,000
TOTAL	$1,056,266,000	$1,023,190,000	$989,290,000

give vents to flammable liquid tanks

The required size of breather vents for atmospheric, aboveground flammable liquid tanks depends chiefly upon the rate of air flow required when the tank is being filled or emptied, along with the fluctuations in vapor volume which occur as a result of temperature changes or other causes, warns a bulletin of The National Board of Fire Underwriters.

Breather vents are either the open type or the conservation vent valve type. The open vent permits free passage of vapor and air in and out of the tank with changes in liquid level and thermal conditions. The conservation vent which conserves the vapors is a pressure vacuum relief device which permits inbreathing and outbreathing. For tanks smaller than 42,000 gallons breather vent sizes should be at least as large as the size of the filling or withdrawal connection whichever is larger.

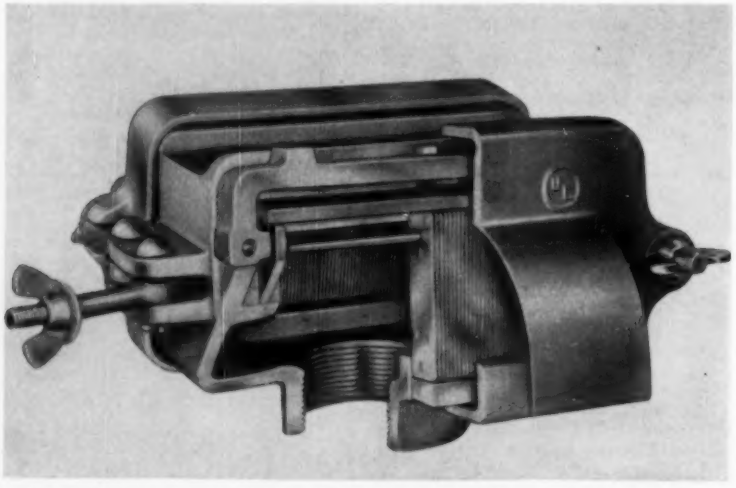
For tanks of 42,000 gallons or larger the total normal venting capacity of breather vents should be the sum of the capacity required for inflow or outflow plus the capacity for thermal inbreathing or outbreathing. This capacity should be obtained without exceeding an operating pressure or vacuum which may be applied to the tank regularly and repeatedly without causing physical damage or permanent deformation.

TABLE I

Required Total Pressure Relief Capacity of Vents

Capacity of Tank		Minimum Total Pressure Relief Capacity	Approximate Diameter in Inches of Free Circular Opening for Various Pressures			
Gallons	42-Gallon Barrels	(Cu. Ft. of Free Air Per Hour)	3 In. of Water	1 PSI	2½ PSI	5 PSI
1,000 or less	23.8	25,300	4	2½	2	1½
4,000	95.2	69,500	6¾	3¾	3	2½
18,000	428	139,000	9½	5½	4¼	3¾
25,000	595	166,000	10¼	6	4¾	4
56,000	1,330	253,000	12¾	7¼	5¾	5
100,000	2,380	363,000	15¼	8¾	7	6
155,000	3,690	458,000	17¼	9¾	7¾	6½
222,000	5,290	522,000	18¼	10½	8¼	7
475,000	11,300	624,000	20	11¼	9	7¾
735,000	17,500	648,000	20	11½	9¼	7¾
Unlimited		648,000	20	11½	9¼	7¾

Note: Venting equipment installed for normal operation may serve as emergency relief, provided that it has the requisite capacity under the pressure limitation fixed by this table. Responsibility for selecting the limiting pressure is placed on the owner or operator.

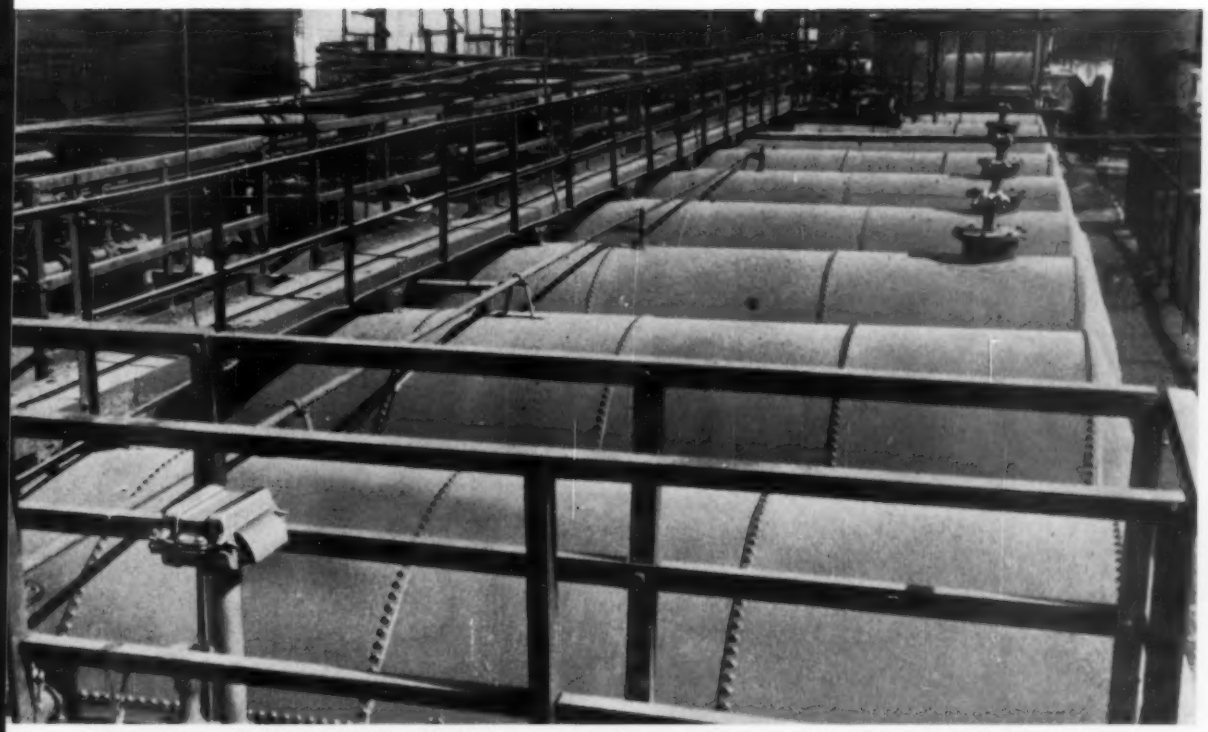


Cutaway picture of an open vent with flame-arrestor plates. Vents, used where vapor conservation is not needed, are protection for low flash point liquids.

Emergency Relief Vents

To accommodate abnormal vapor efflux which might occur during an exposure fire, aboveground atmospheric tanks should have some device or form of construction which safely will relieve excessive internal pressure. These may be additional or larger open vents, conservation vents, a self closing gage hatch or manhole cover, or a manhole cover with long bolts which will permit the cover to lift under internal pressure, or a weak seam in the roof. Any vertical aboveground tank, which has a diameter of 36 feet or over and a roof attachment known as a weak roof seam, does not have to be provided with emergency vents.

Emergency relief vents should be provided on each horizontal tank, on each vertical tank unless it is equipped with a weak seam in the roof or a floating roof, and on each tank containing a liquid the Reid



Open vents with flame arresters installed on large horizontal tanks required in big by-product benzol plant.

vapor pressure of which is higher than 18 lb. per sq. in.

The capacity of emergency relief devices, except as provided in the above paragraph, should equal the difference between the total relief capacity required (See Table 1), and the capacity of the breather vents on the tank.

Flame arresters are placed in vents for the purpose of preventing flames from traveling back through the vapor-air mixtures and igniting the stored flammable liquids. Flame arresters and flame arrester-vent valve combinations have been tested and listed by the Underwriters' Laboratories, Inc., for applications designated in the individual listing. The data on flow capacity are available in the Laboratories reports on the listing.

Location of Arresters

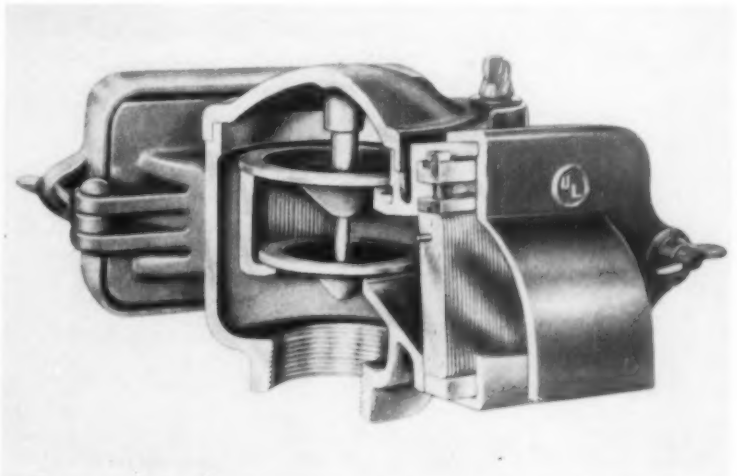
The installation of vents without flame arresters is not regarded as providing full protection against fire and explosion. Care should be taken to avoid having openings to atmosphere between the flame arrester and the tank. Flame arresters and flame arrester-vent valve combinations are not intended to resist the flame of continuously burning mixtures at the maximum for long periods of time. Listed flame arresters may not arrest propagation of flame when the outlet is connected to pipe of greater length than specified in the listing.

Screens

The use of screens in vent pipes for the obvious purpose of preventing foreign material from getting into the tank is of indeterminate value. It is true they keep out foreign material but constant maintenance is required to prevent clogging. A clogged screen in a vent pipe can create a greater hazard than any credit obtained by preventing the entrance of foreign material.

The need for adequately designed emergency relief vents on aboveground tanks to prevent the development of excessive internal pressure in the event of an exposure fire is clearly shown by two such fires.

Refinery, Dumas, Texas. Nine-



Cutaway picture of a conservation type vent with vertically mounted flame-arrester plates. Top valve controls air intake, bottom one escape of vapors.

teen fire fighters died in July, 1956 when vapors from 500,000 gallons of a pentane-hexane mixture escaped from a ruptured spheroid. This spheroid was equipped with two 6-inch pressure vacuum vents set at 15 psi connected to an 8-inch vent and connection. Both vents were equipped with return bend weather hoods. Flame impingement from burning vapors issuing from the vent on the spheriod weakened the top plate which was in the vapor space resulting in violent rupture of the spheroid. The vent should be arranged to prevent localized overheating of any part of the tank. (Cont. bottom of page)

CLEAN PART-ners

CLEAN
AUTOMOTIVE
INDUSTRIAL
PARTS 3 WAYS!

1. Continuous flow hose
2. Air Agitated soaking tank
3. "Super Power" Jet Air Gun

Klearflo SUPER CLEANMASTER MODEL 50

Klearflo POWERMASTER DEGREASER

Wash entire engine blocks or 200 pounds of smaller parts at once and fast! A unit that will definitely reduce your operating costs to unheard-of minimums.

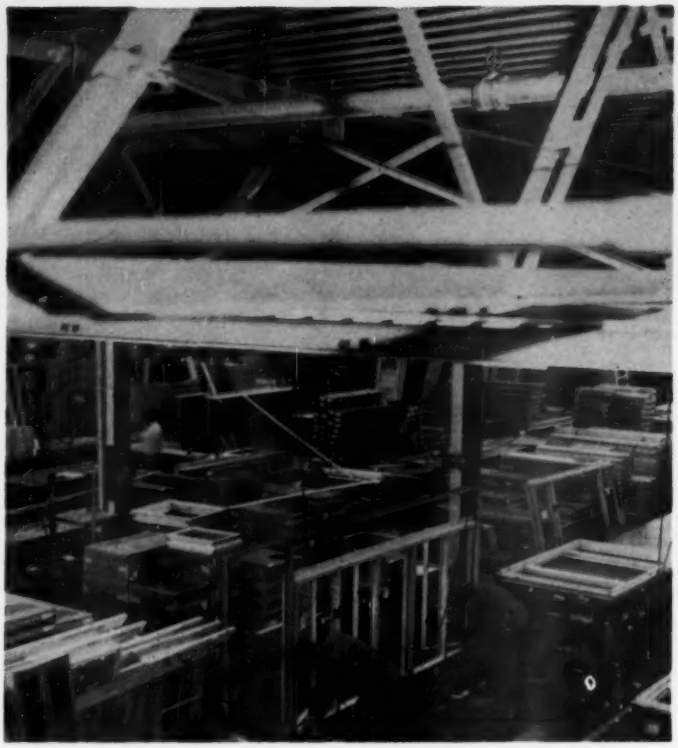
Write for Illustrated Color Folder

America's Foremost Producer of Parts Cleaning Equipment

PRACTICAL MFG. CO.

DEPT. B-3 2840 4th Ave. S., Minneapolis 8, Minn.

(Use Key # C-15 on Inquiry Card on page 1)



Fire Protection for Heated & Unheated Areas

Nine hundred fifty sprinkler heads are included in the sprinkler system for this new building of Iron City Sash & Door Company, near Pittsburgh. Specially designed for unheated buildings, a dry pipe system is used in the storage area, while the production area, which is heated, is protected with a wet system. Note sprinkler head and piping at top of picture.

Millworking equipment and warehousing capacities of two separate smaller plants are combined in Iron City's new building on the Penn-Lincoln Parkway, five miles west of Pittsburgh. The new facility, with 25,000 square feet of production area and 83,000 square feet of storage space and shipping docks is housed in a new aluminum skin building.

The building is more than 600 feet long by 100 feet wide, exclusive of the railroad siding and truck shipping space. Roof clearance in the mill is 14 feet, while in the storage area it is 24 feet.

Picture by courtesy of Power Piping & Sprinkler Div., Blaw-Knox Co.

Bulk Plant, Galena, Maryland. In May, 1956 fire and explosions killed two firemen, hospitalized eight others and completely destroyed the bulk plant. At the bulk plant were two 6000 gallon converted riveted railroad tank cars on which the expansion domes had been removed, steel plates welded over the openings and each tank was equipped with a 2-inch open vent with a return bend. These converted tanks were originally designed with a calculated bursting pressure of 240 lb. per sq. in. Fire during an unloading operation resulted in several explosions in containers of flammable liquids and greases. A 10,000 gallon horizontal tank on unprotected steel supports exploded ten minutes after the original explosion. The final explosion, which involved the converted railroad tank car containing gasoline occurred approximately 30 minutes after the initial fire. This tank skyrocketed 400 feet and was responsible for the deaths and injuries.

Pictures by courtesy of the The Protectoseal Co.

Spongy insulating mat keeps puffing up as flame strikes surfaces painted with new fire-stopping, heat-retarding paint.

NEW PAINT FORMS A FIRE-PROTECTIVE MAT

Paint as a fire preventive, a comparatively new tool in the kit of the builder and safety expert, took on major significance with the introduction recently of a flame-retardant paint rated as two to four times more effective than similar coatings already on the market. This new intumescent wall covering is called Saf, a trademarked abbreviation of the phrase "stops all fires."

Federal government engineers, state and municipal building commissioners, architects and builders, fire department heads, insurance inspectors, industrial experts, landlords who own structures where large numbers of people live or assemble and the many organizations concerned with fire prevention look upon elimination of fire hazards as one of the nation's most vexing problems.

Fire ranks second only to motor vehicles in the number of persons killed and the amount of property destroyed in the United States every year. In 1958 alone 11,500 persons lost their lives in fires, an increase of 200 over 1957, according to the National Safety Council. During the same 1958 period fire also accounted for property losses of $1,056 billion, the National Board of Fire Underwriters reports. Millions of dollars are spent annually by organizations sponsored by industry, insurance companies and government to cut down these staggering losses.

Experts are aware that tinder box areas exist in many municipalities and that an otherwise insignificant spark, landing in the right spot, could wipe out whole sections. But in many instances they are reluctant to push enforcement because of prohibitive safety renovation costs.

Consequently, many safety engineers who have studied tests and witnessed demonstrations of this

(Continued on page 57)

Fire rages in Air Force base barracks, while in adjoining one, set afire at same time, new paint effectively resists flames.

Fireman points to a one-inch thick insulating mat, created by fire-retardant paint which stopped barracks fire spread.

PEDAL-CONTROLLED TRANSMISSION LIFT TRUCKS

A new method of power transmission, based on the principle of hydrostatics, is announced by Towmotor Corp. Called "Towmostatic Drive," it enables truck operators to control all forward and reverse movements with a treadle-type pedal operated by the left foot.

The new drive provides instantaneous power while eliminating the clutch assembly, transmission, drive line or differential and manual shifting levers. The drive pedal is designed for fatigue-free foot operation, completely natural, since a forward toe pressure moves the lift truck forward and a heel pressure actuates reverse travel. Pedal movement is said to result in a smooth, rapid pick-up, with no jarring of loads. Even normal braking can be done by operation of the drive pedal. Designed to increase grade "pull" about 20% with rated load, the unit is also expected to lower service costs substantially by eliminating most causes for lift truck maintenance and downtime.

Two constant displacement pumps driven by the conventional gasoline engine provide a flow of hydraulic oil under pressure to two positive displacement piston-type motors which in turn furnish power to each of the drive wheels. A single oil reservoir offers ample capacity for the transmission requirements and hydraulic functions of the lift truck. The two pumps also furnish power for lifting and tilting. The driver uses his hands only for steering and controlling the lifting and tilting levers. The transmission hydraulic system is controlled by a valve which functions automatically to provide safe handling at all times.

For details, use **Key # MH-1** on inquiry card on page 1.

CORROSION RESISTANT LIFT TRUCKS

Yale Materials Handling Div. of The Yale & Towne Mfg. Co. has developed a new modification for its "Worksaver" line to permit rider-walkie type trucks to operate in areas where corrosive liquids are present in such places as tanneries, meat processing plants and plating operations where excessive amounts of water and acids cause equipment breakdowns. To achieve corrosion resistance, both drive and hoist motors are completely enclosed. A phosphate coating is applied to undercarriage linkage to protect moving parts. A special undercoating is placed on non-moving parts. In addition, a corrosion resistant paint is used on the whole truck.

Steering ease is assured by the placement of a splash guard on the ring bearing controlling directional movement. Hydraulic cyclinder piston pitting is prevented through the use of deep, hard chrome plating. Grease fittings are provided at bearing points so that the bearings may be grease flushed. Trail wheel bearings are sealed to prevent the introduction of foreign material.

For details, use **Key # MH-2** on inquiry card on page 1.

MATERIALS HANDLING DEVELOPMENTS

NEW CANVAS TOTE BASKETS

Specially designed, durable, canvas tote baskets have just been introduced by the Handy Folding Pail Co., Inc. They are light in weight, easy to carry and can be nested inside one another without sticking, for storage in a small space. Made in two sizes—17 x 10 x 7" deep weighing 18 oz. and 20 x 12 x 8¾" deep weighing 24 oz., the baskets are vat-dyed, water repellent duck over a tinned wire frame, with a washable plasticized canvas bottom. The riveted double canvas handle is balanced so that the basket will not tip or become unwieldy.

The pails have a multitude of uses—transporting or storing small parts from operation to operation, for assembly, inspection, repair, etc.; as tool boxes, repair boxes, etc.; for inter- and intra-departmental mail, supplies, messenger service, etc. The baskets may be imprinted with names and numbers. Colors also may be used for identification. These tote baskets may be had in royal blue or bottle green from stock, other colors on special order.

For details, use **Key # MH-3** on inquiry card on page 1.

HORIZONTAL PLATE CLAMP

The latest device put on the material handling market by Merrill Brothers is their new "Horizontal Plate Clamp," developed for use in handling large, unwieldy steel plates. All parts are completely drop forged and heat treated. Used in pairs, this new device will speedily and efficiently grip, hold and convey swinging, jerking loads in complete safety.

For details, use **Key # MH-4** on inquiry card on page 1.

DRUM HANDLING ATTACHMENT

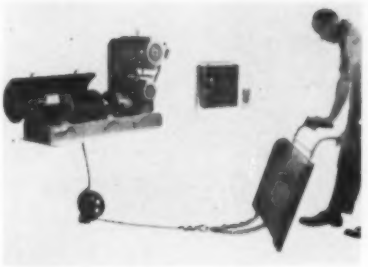
A "Liftomatic" drum handling attachment that can be used interchangeably with its line of electric fork trucks has been developed by Lewis-Shepard Products, Inc. The new drum handling attachment is a mechanical unit designed to engage, transport, place and tier any conventional-type drum without the use of pallets or dunnage. Because the clamping mechanism is adjustable from 35" to 14", any size drum regardless of height, diameter, head or rim size can be handled. The jaws can operate on steel, removable lid, fiber or light gauge (disposable) metal drums.

No additional controls are necessary since it is a mechanical unit. The clamping mechanism consists of an outer and inner housing—the inner housing is spring actuated and has an upper and lower jaw. The fork truck operator approaches the drum; the inner housing is pressed in until the outer housing touches the side of the drum. Then by raising the carriage the jaws automatically grip the rim of the drum. To remove the drum, operator lowers drum to the resting surface and continues to lower truck carriage until both jaws have retracted.

For details, use **Key # MH-5** on inquiry card on page 1.

ELECTRO-MAGNETIC SHOVEL

A new "Electro-matic Scoop," which is used for handling and unloading of bulk material, is announced by the Munson Mill Machinery Co. The new scoop features unit construction, an integral gear reducer and a magnetic clutch to provide power to the shovel. A system of magnetic controls is operated by the operator's thumb. The new shovel provides flexibility and faster unloading. It is claimed that operational fatigue has been considerably reduced.



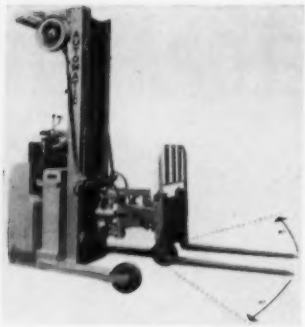
The design includes such features as grooved cable drum and a flexible steel cable. A new type door grapple and the absence of open slip rings assure freedom from accidental transmission of power to the operator and limit the possibility of injury. An emergency stop switch is standard equipment on all of these units to prevent damage in case of carelessness by the operator. The shovel is offered with selected speeds and with a variety of steel scoops.

For details, use **Key # MH-6** on inquiry card on page 1.

MOBILE CRANES USE NEW COIL HOOK

Ruger Equipment Inc. recently made available a new line of coil hooks. The benefits of coil hook accessories used with multi-purpose cranes include easier and more economical handling of strip steel products. By adding the coil hook, users can combine all their lifting and transporting operations, including strip steel, tin plate and other hard-to-handle coil products, with a single mobile crane.

For details, use **Key # MH-7** on inquiry card on page 1.



NARROW-AISLE SWING REACH TRUCK

A new swing reach truck, "Transveyor," developed by the Automatic Transportation Co., projects the forks forward to "reach out" for the load and swing in unison, right or left of center up to 30 degrees. The truck is available in 2,000, 3,000 and 4,000 pound capacities. The new "swing" feature provides the forks with a 60 degree radius to eliminate positioning the truck to pick up a load. The operator makes the necessary adjustments by moving the forks to the right or left, thus speeding up the entire handling process.

The compactness of the swing reach mechanism and the low over-all height permit greater utilization of existing storage space and higher stacking of loads. The truck attains a maximum lift height of 130 inches from a collapsed mast height of 83 inches. Deflection is said to be virtually eliminated through the new horizontal double hinge design of the mechanism. A tilt device is optional but it is not required to eliminate fork deflection, only to cradle the load in a carrying position.

This truck has been designed so that the reach and swing mechanism can be operated simultaneously or individually through the use of one control lever. This feature helps in positioning loads and for faster handling. The new truck permits the use of various sized pallets and skids and eliminates the space between loads required with an outrigger truck. Because the base arms do not enter rack sections, the unit can be used with any existing rack installation.

For details, use **Key # MH-8** on inquiry card on page 1.

NEW PLASTIC ROPE

Use of plastic ropes fashioned from "Mylar" as load slings in industrial hoists has resulted in definite economies and an improved safety record, states the manufacturer, the U. S. Plastic Rope Co. Inc. A two-year constant-use test reported:

1. "Mylar" slings with high tensile strength enable replacing 1" dia. natural fiber rope with easier-handled ½" plastic material.

2. It is not subject to load-caused kinks or sets.

3. Minor in-plant accidents caused by workmen cutting their hands on broken threads in steel slings have been eliminated.

4. "Mylar" does not scratch plastic and steel coil stock.

Additional operating advantages of plastic ropes for industrial usage claimed by the manufacturer: dielectric properties which enable it to be passed over "hot" power lines without danger of shorting, and an imperviousness to most types of acid and metallic corrosion that makes it particularly suitable for chemical plant use. An exclusive manufacturing process reportedly forms "Mylar" film into a

fine yarn, which is then used to make up continuous lengths in all standard rope sizes from ⅛" to ⅞". Unlike plastic ropes of polyethylene, "Mylar" has negligible stretch and suffers no discoloration or brittleness when exposed to direct sunlight.

For details, use **Key # MH-9** on inquiry card on page 1.

DRUM ROTATER AND DUMPER

A new powered drum rotater and dumper, manufactured by the Langley Mfg. Co., Inc., lifts drums, bags, trucks, skid and pallet boxes and dumps them into vats, tanks, retorts, hoppers, bins, racks or drums, etc. The unit, called the "Pow-R-Dumper," works automatically at the touch of a button. Models are available to handle loads up to 2000 lbs. Models may be either stationary or portable and can handle any single type of container. All units are constructed with steel frames and cross-braced for extra rigidity and resistance to shock loading. The "Pow-R-Dumper" handles all material without spilling, dripping or waste. The discharge may be equipped with various chutes, slides or dust controlling spouts.

For details, use **Key # MH-10** on inquiry card on page 1.

STACKER FEATURES OPERATOR SAFETY

A new 24 volt "Walkie Stacker," for 2000 lb. palletized loads, has just been announced by the Raymond Corp. This model handles loads up to 48" x 48" and will stack more than ten feet high. The power unit uses four six-volt batteries mounted in pairs on each side of the drive unit. Only 25" longer than load

lengths, the unit will enter pallets at right-angles in aisles as narrow as 53", depending on pallet size. Forward and reverse speeds are varied by increasing or decreasing actual voltage instead of adding resistors in the electrical circuit. Utilization of full 24 volt power facilitates ramp operation.

Controls for speed and direction, elevating and lowering are clustered on the steering handle control head along with a mushroom safety button. This spring loaded switch instantly moves the truck away from the operator, should it strike any part of his body, and permits safe operation in confined areas. Available with elevated heights of 52" to 124".

For details, use **Key # MH-11** on inquiry card on page 1.

PROPULSION UNIT FOR WHEELED DEVICES

A new self-contained electric propulsion unit which provides drive, brake, and steering functions for any mobile device is announced by Vanguard Engineering Co. The "Powr-Wheel" will drive any wheeled or castered unit up to 3000 lbs. gross vehicle weight. It is available in two models; the model 560, complete with battery, battery box, and cables; and the model 550, for devices which already use a battery-powered 12-volt system.

The unit has a centrifugal clutch for smooth acceleration. Fluid drive is optional. Jogging the motor switch provides speed regulation for both forward and reverse maneuvering. The brake is operated by the steering handle. Moving the handle into a vertical position applies the brake. The handle automatically moves into brake position when released. Forward and reverse push-button controls are located on the steering handle.

The "Powr-Wheel" has a normal speed of 2 miles per hour. No-load speed is somewhat more and the speed decreases slightly when fully loaded. The unit weighs approximately 400 lbs. including battery, battery box, and cable. The unit requires only a small mounting surface. Existing equipment or new designs can be adapted with no alteration to running gear.

For details, use **Key # MH-12** on inquiry card on page 1.

AIR POWERED HOIST

Yale Materials Handling Div. of The Yale & Towne Mfg. Co. has introduced a line of air powered hoists. The new line provides powered overhead handling equipment applicable to installations where variable hoisting and lowering speed and extremely close load spotting control is needed. Air hoisting equipment is essential in applications where the presence of explosive atmospheres presents a safety hazard or corrosive or unusually dirty conditions create maintenance problems. Introduced in link and roller chain models of 1000 and 2000 pound capacity, both hook and trolley type hoists are available.

Close load spotting and variable speeds of the new hoists are controlled by a choice of push button pendant or pull cable control. Standard lifting speeds, utilizing 90 pounds per square inch of air pressure, range from 6 to 40 feet per minute in the 1000 pound model under full load and 3 to 20 feet per minute with the 2000 pound model with full load. The air hoists measure 10½ inches in length and five inches in diameter. Rotary-vane type motors power the unit. Vanes are spring loaded so that they are thrust out to maximum position at any point in their orbit, giving the motor instant response to control action. A standard safety feature uses safety-snap hooks for the load and the hoist itself.

A mechanical motor brake with linings bonded to brake shoes works through reduction gearing to the motor for positive load control. When air power is shut off the brake locks automatically. Should a power failure result from an accident such as a broken line, the load can still be safely lowered through the regular hoist controls.

For details, use **Key # MH-13** on inquiry card on page 1.

SAFETY FACTS for Industry

MOST SAFETY DIRECTORS INSIST ON Safe-Hi LADDER SHOES!

BECAUSE Safe-Hi LADDER SHOES ARE U/L APPROVED FOR ALL SURFACES! THIS EQUIPMENT ENABLES WORKERS TO PERFORM LADDER JOBS WITH SAFETY* AND EFFICIENCY—NO NEED OF "HELPER" TO HOLD BASE OF LADDER!

* A 1949 REPORT OF THE N.Y. WORKMEN'S COMPENSATION BD. SUMMARIZING 21,000 FALL ACCIDENTS, DISCLOSED SLIPPING LADDERS AS THE PRINCIPAL CAUSE OF LADDER ACCIDENTS.

DIAGRAM SHOWING ACTUAL HOLDING POWER OF Safe-Hi LADDER SHOES UNDER CONDITIONS INDICATED FROM AUTHENTIC MEASURED TESTS.

SELF SHARPENING SPIKE FOR ICE, SNOW, GRAVEL ETC.

ALSO AVAILABLE:—NON-SPARK LADDER SHOES FOR REFINERIES, GRAIN ELEVATORS, MUNITIONS PLANTS AND ALL INDUSTRIES WHERE SPARKS ARE A HAZARD.

OTHER Safe-Hi LADDER ATTACHMENTS

POLE GRIP HOLDS TOP OF LADDER ON ANY POLE, PIPE OR CORNER.

WALL GRIP HOLDS TOP OF THE LADDER SECURELY TO ALL SMOOTH WALLS.

ROSE MANUFACTURING CO.
2700 W. BARBERRY PLACE
DENVER 4, COLORADO

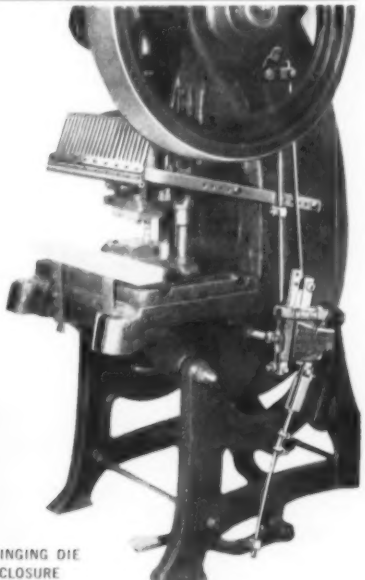
Safe-Hi DENVER

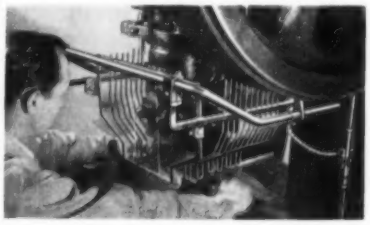
(For details, use Key # C-16 on card on page 1)

Cut Insurance costs with...

JUNKIN
Safety Guards

Invest in safety—accidents cost money! Junkin Safety Guards for primary and secondary punch press operations afford maximum protection, increase press production and lower insurance rates. Swinging Die Closure is constructed to be adaptable to a variety of primary operations.





SWINGING DIE CLOSURE

INTERLOCKING BARRIER GUARD

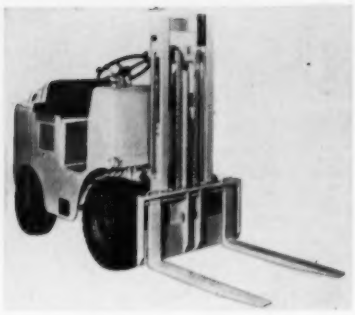
Canadian Distributors
LEVITT SAFETY LTD.,
TORONTO

Write for Free Catalog
"THE KEY TO PROTECTION"

JUNKIN SAFETY APPLIANCES
3121 Millers Lane, Louisville 16, Ky.

JUNKIN ENGINEERED SAFETY

(For details, use Key # C-17 on card on page 1)



LIFT-TRUCK FEATURES ADDED SAFETY

A diesel-powered fork lift truck engineered to provide safety in areas and industries where additional safeguards are needed has just been introduced by Towmotor Corp. Designated the "Towmotor Safeguard Diesel Fork Lift Truck," the new unit is available in 9 models—with lifting capacities ranging from 3000 to 12,000 pounds. Accepted and listed by Underwriters' Laboratories Re-examination Service and Factory Mutual Laboratories as type "D" equipment with optional safety features, the new lift truck is devoid of electrical components.

It is equipped with hydraulic starter, mechanically-operated fuel, temperature and oil pressure gauges and a mechanical warning device. A low volatile fuel is used. The unit also features a water-cooled exhaust manifold and water muffler. The lift truck's hydraulic starting motor, which replaces the conventional electric motor, generator and storage battery, is actuated by fluid released by a pressure accumulator charged by the truck's hydraulic system. A hand pump enables the lift truck operator to charge the accumulator manually. Exhaust manifold is connected to the engine cooling system. Water muffler has sufficient capacity for a normal day's operation. A fuel flow control lever mounted on the cowl in conjunction with the starter actuator starts the truck.

For details, use **Key # MH-14** on inquiry card on page 1.

ACCESSORY CONVERTS FLOOR CRANES INTO LIFT TRUCKS

Ruger Equipment Inc. has presented "Stack-Or-Lift," a new accessory, designed to eliminate the need for overhead cranes and lift trucks for general purpose lifting, stacking and transporting. "Stack-Or-Lift" adds lift truck and stacking facilities to most standard ½, 1 and 2 ton mobile hydraulic cranes. In tests, cranes with the new accessory proved conclusively that most materials handling operations can be handled by these multi-purpose units. Depending upon the crane model, the device can be attached with either 2 or 4 bolts. It takes one man only a few minutes to attach or remove it between jobs. Full clearance under and around its forks permits lifting and stacking loads of any width.

For greater flexibility, fork widths will adjust to fit most pallets. Optional platform attachments are available for handling loose materials. "Stack-Or-Lift," attached to any standard 2 ton hydraulic crane, has 1,000 pounds capacity for safe lifting, transporting and stacking under all conditions. When attached to standard ½ ton and 1 ton cranes, it has suggested safety limits of 350 pounds and 600 pounds respectively. Capacity for 1 ton crane models can be increased more

than 60% with the addition of a 150 pound counterweight. A control valve makes it possible to position fragile loads with precision and smooth operation at all speeds.

For details, use **Key # MH-15** on inquiry card on page 1.

SAFETY LOCK FOR LIFT ATTACHMENTS

An all new materials handling device known as the "Automatic Safety Lock Fork Lift Attachment," is now available to simplify transporting heavy loads, such as dies or motors. It is made of forgings, including a safety swivel hook. When slipped onto the forks (no wrenches,—no adjustments), two knife edged levers grip the forks tightly as the load is applied, but can be easily slipped off when the load is released. Especially designed to transform any fork lift truck into a safe, efficient, mobile overhead lifting unit, it adds to the usefulness of fork lift trucks. Available from Merrill Bros.

For details, use **Key # MH-16** on inquiry card on page 1.

MULTI-PURPOSE WINCH AND HOIST

The "Multi-Pul" can be adapted easily to a wide variety of functions, claims the manufacturer, The Indus Corporation. This tool has been designed to replace several men and to reduce sprains and strains in such operations as cargo handling, freight car unloading, construction work, stretcher handling, derrick work, airplane tie-downs, wire pulling, etc. Because all the unit's working parts are enclosed, maintenance costs are reduced and trouble is rated at a minimum.

The new tool can take the place of a lift, hoist or tackle and can be mounted in any direction, depending upon the job. The unit is light in weight—a new material, "Almag 35," was used in its construction. This material offers light weight and high tensile strength with a low corrosion factor. Other construction features include: self-energizing brakes, cast iron inserts for brake drum reels, interlocked frame design, mounting lugs, "oilite" bearings, curved pawls with ends resting on solid metal, lockout cams, etc. Both single-reel and double-reel models are available.

For details, use **Key # MH-17** on inquiry card on page 1.

FORK TRUCK FOR HAZARDOUS LOCATIONS

A walkie fork truck designed to meet Underwriters' Laboratories explosion proof specifications has been introduced by the Moto-Truc Co. Built for safety in hazardous locations, the new truck design will permit mechanized handling in refineries, paint and chemical plants, mines and other installations where vapors and fumes are present in explosive quantities. The new truck meets the Underwriters', Type EX—Class 1—Group D explosion proof specifications and is available on all counterbalanced fork trucks in the company's line. This includes both walkie and small rider models up to 10,000 pounds capacity. Explosion proof trucks are the same as standard models except for a minor increase in over-all length to accommodate the special battery and wiring arrangement required.

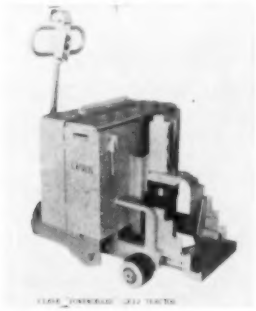
All switches, motors and wiring are sealed in conduits or explosion proof enclosures. Battery arrangement permits flexible speed control without heat producing resistance boxes. The battery is completely sealed to prevent the possibility of a spark setting off an explosion.

For details, use **Key # MH-18** on inquiry card on page 1.

BATTERY POWERED TRACTOR FOR HAULING LIVE SKIDS

A battery powered tractor for hauling live skids has been introduced by the Industrial Truck Div. of Clark Equipment Co. as part of its "Powrworker" line of electric powered hand trucks. Called the "Powrworker" Grip Tractor, the unit will handle skids of any standard height, states the manufacturer. Skid-gripping action is accomplished by a hydraulically-operated jaw which clamps down on top of the skid and a notched plate which fits under the skid. The machine has a drawbar pull of 200 lbs. and a breakaway rating of 700 lbs., and will travel two mph loaded.

Forward and reverse movement is controlled by a butterfly switch in the control head on the steering handle. The steering handle turns 90 degrees in each direction. Brakes are automatically applied when the steering handle is in either vertical or horizontal position.



When the brake is applied the power circuit is broken. Powered by a single-row battery, the tractor has a 23¾ inch wheelbase and is 32 inches wide. It weighs 1035 lbs.

For details, use **Key # MH-19** on inquiry card on page 1.

NEW ELECTRIC LIFT TRUCK

New stand-up electric lift truck features compact design, full vision of forks from driving position, direct steering on roller mounted 15½ inch ring gear, fast maintenance of all electrical contacts and hydraulic controls which are mounted on the undersides of the hinged top, optional 360° steering, and rigid construction consisting of 2-inch plate steel sides and 9-inch solid steel base plate. This new truck, designated the "Hustler," DTL Series, manufactured by the Heifred Corp., utilizes a General Electric motor, class B, silicone insulated. In addition,

this new truck provides a larger battery compartment to accommodate a greater range of battery sizes up to 648 ampere-hour capacity.

The "Hustler" is furnished in 2,000 and 3,000 pound capacities on 24-inch load centers. It measures 59-inches long (less forks), 38-inches wide, and 57-inches high to top of steering wheel. It has a turning radius of 50 inches, provides inching control, reverse and four forward speeds to 6 miles per hour.

For details, use **Key # MH-20** on inquiry card on page 1.

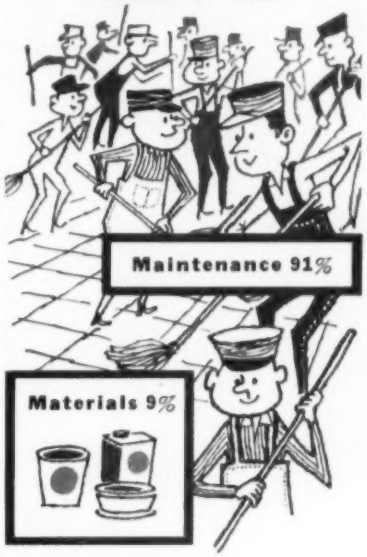
MOBILE SWING BOOM CRANE WITH FRONT WHEEL DRIVE

"Krane Kar," a swing boom industrial truck crane, manufactured by the Silent Crane & Hoist Co., features front-wheel drive traction wheels to support the chassis and crane load. The unit can safely pick up a load of any size, shape or weight from 1,000 to 25,000 pounds. One engine powers the machine both for travel and crane operations. All operations may be performed independently or simultaneously in the same or opposite directions. Unit is fully hydraulic, from a fluid drive engine to power steering and load handling.

Safety features include an automatic limit stop which forces the machine into neutral if the unit should be overloaded. Crane is designed so that no part passes over the operator's head. Tail-swing is eliminated. One axle of special forged alloy steel straddles both chassis rails to support both the weight of the vehicle and the load it carries.

For details, use **Key # MH-21** on inquiry card on page 1.

Here's where your Floor Maintenance Dollars Go:



A dollar or two saved by buying inferior polishes might put a smile on the Purchasing Agent's face. But, Mister, that's chicken feed compared to the *real* money LEGGE saves you on upkeep.

LEGGE Safety Polishes stay on the floor where they belong. Heavy traffic won't walk 'em off. They outlast ordinary polishes by up to *8* times. After the first application, a light daily touch-up program replaces the labor-consuming routine of stripping, polishing, stripping, etc.

Materials actually cost you less because you use less. But the big payoff is: you save up to *40%* on maintenance. A famous institution lopped $19,000 off its annual floor upkeep budget. These are not just claims. These are facts which we'll be delighted to *prove* whenever you say the word.

May we arrange an appointment for you with a LEGGE *Floor Specialist? No obligation. Or clip the coupon today for our Free booklet, "Mr. Higby and the Gremlin".*

LEGGE SYSTEM

Walter G. LEGGE Company, Inc.
Dept. F-3, 101 Park Ave., N. Y. 17, N. Y.
Branch offices in principal cities.
In Toronto — J. W. Turner Co.

☐ Have a Legge man call me for an appointment.
☐ Send me your Free floor maintenance booklet.

Name_____
Title_____
Firm_____
Address_____
City_____ Zone____ State____

(Use Key # C-18 on Inquiry Card on page 1)

HYDRAULIC BOX DUMP ATTACHMENT

An hydraulic box dump attachment, designed for handling drop-bottom boxes, has just been announced by The Elwell-Parker Electric Co., for use on its fork trucks with capacities from 2,000 to 10,000 lbs. Drop bottom boxes may be loaded quickly by mechanical means for dumping onto floors, conveyors or into bins, hoppers, freight cars, etc.

Typical loads that can be handled include castings, forgings, small machined parts, scrap, chemicals, foundry sand and a wide variety of small parts or bulk materials. Advantages claimed for the attachment include: unit is demountable and designed to be installed in the field.

For details, use **Key # MH-22** on inquiry card on page 1.

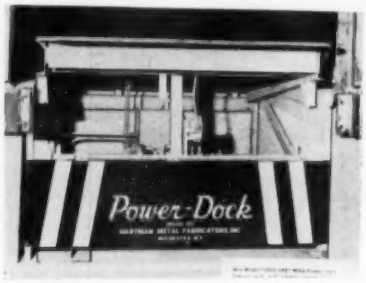
NEW HYDRO-POWER WHEEL

The "Hydro-Power Wheel," available from the Stratton Equipment Co., is particularly applicable to portable floor cranes, fork lifts, four wheel trucks, or any equipment where power drive, both forward and reverse, is desired at speeds of 1 to 2 miles per hour. Used to convert free rolling equipment into a powered unit, the wheel is self-contained and fully hydraulic. It has no gears, sprockets or chains and doubles in service as a self-locking brake when not in motion. Simple in design, the power wheel derives its energy from an ordinary 12 volt, heavy duty industrial battery, traction motor and hydraulic pump.

For details, use **Key # MH-23** on inquiry card on page 1.

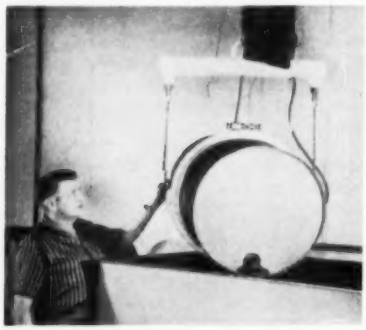
ELEVATING POWER DOCK

New power dock will automatically adjust its deck plate to compensate up to 4" for out-of-level truck beds at loading platforms. The dock lip will lie tight against the truck bed, under its own weight, when one side of the truck bed is as much as 4" higher or lower than the other side. This feature, the manufacturer states, will eliminate spilled loads, prevent hanging up of pallet trucks, protect small pallet truck wheels from damage, and speed loading and unloading. Since the central structural supports of the dock's top plate all run laterally, the deck warps or bends to



conform with the level of the truck bed without loss of structural strength. This unit, described as Model 9000 "Power Dock," is made by Hartman Metal Fabricators, Inc.

For details, use **Key # MH-24** on inquiry card on page 1.



PNEUMATIC GRIPPER

A new pneumatic gripper, manufactured by the Presray Corp., uses an inflatable neoprene element to grip the load. Several models are available for holding, lifting and moving various shaped objects. The neoprene tube conforms to minor surface irregularities to exert a uniform gripping force.

A check valve permits disconnection and free movement of the unit away from the air supply. Typical applications include lifting and discharging drums of liquid. Also suitable for handling materials with fragile or easily marred surfaces. Device has been designed to be operated by one man. Neoprene, in this case a DuPont compound, makes the gripping tube oil and corrosion resistant.

For details, use **Key # MH-25** on inquiry card on page 1.

NEW FORK LIFT

A higher lift in considerably less operating time is now possible with the new S-10 model "Moto-Bug." Maximum lift has been raised to 7½ ft., while the time required to elevate a load (up to 1000 lbs. at a 15 in. load center) has been reduced from 24 seconds to 15 seconds. A flow regulator controls the drop. The telescoping mast on the lift is hydraulically operated, has a 10 degree back tilt and a 2 degree forward tilt.

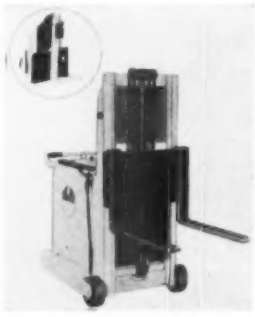
Forks can be adjusted from 6 to 32 in. widths to accommodate various sizes of loads. Standard forks are 20 in. long with optional 30 in. lengths available. The S-10 unit is easily changed from a fork lift to a 10 cu. ft. hopper or 1500 lb. capacity platform carrier. Available from Kwik-Mix Company.

For details, use **Key # MH-26** on inquiry card on page 1.

LIFT TRUCK COUNTERWEIGHT

Big Joe Mfg. Co. presents a new, easy to maneuver lift truck in its line of more than 80 battery powered hydraulic lift trucks. Known as the "Counterweighter," this unit is a 1000 lb. capacity direct-approach materials handling tool which has the ability to handle double faced pallets in addition to wire coils, tote pans, rolls, dies, jigs, carboys, etc. A new counterbalancing principle makes it adaptable to any weight lifting problem from 1–1000 lbs. It helps solve many elevator and other light load floor requirement problems previously inaccessible to mechanical handling solutions because it operates where other mechanized mechanical equipment cannot operate.

For details, use **Key # MH-27** on inquiry card on page 1.



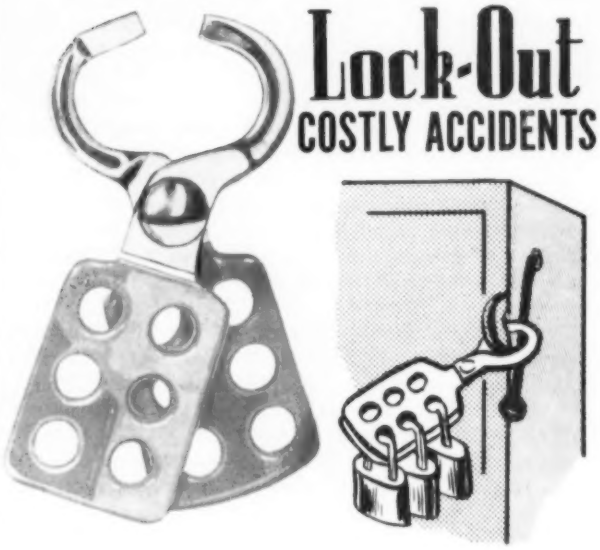
CANCER'S
7
DANGER
SIGNALS

1 Unusual bleeding or discharge
2 A lump or thickening in the breast or elsewhere
3 A sore that does not heal
4 Change in bowel or bladder habits
5 Hoarseness or cough
6 Indigestion or difficulty in swallowing
7 Changes in wart or mole

If your signal lasts longer than two weeks, go to your doctor to learn if it means cancer.

AMERICAN CANCER SOCIETY

Lock-Out
COSTLY ACCIDENTS



Permits several workers to "feel safe" while working on equipment. No one can "turn on" the switch or valve until the last worker has removed his lock.

OSBORN *Manufacturing Corp.*
WARSAW, INDIANA

(Use Key # C-19 on Inquiry Card on page 1)

Fire-Protective Mat

(from page 49)

new paint, predict that building departments will adopt it as an effective, economical substitute for costly fire-retardant building materials.

Some have expressed the opinion that had the new paint been available for proper application in schools and similar structures, the appalling toll of 90 lives lost in such tragedies as the Our Lady of the Angels parochial school in Chicago could have been averted or at the very least reduced. Likewise, they feel that the seven Air Force students who were burned to death in their barracks at Syracuse University early this year might have been saved.

This new fire-retardant coating is now being marketed nationally only after having undergone rigorous laboratory tests and public demonstrations.

Perhaps the most severe laboratory test was that made by Underwriters' Laboratories, Inc., of Chicago, non-profit testing organization of the National Board of Fire Underwriters. UL gave the new paint a flame spread rating of 10 for two coats, one of flat and one of interior gloss. A single coat of the flat fire-retardant received a rating of 15. The lower the number the better the classification under UL specifications. For instance, fast burning building materials have a classification far in excess of 100.

The nearest rating for a competitive product is 20–25 in two coats, against 10 and 34–45 in one coat, compared with 15 for the new product. UL now lists seven paints as having fire-retardant qualities. These range from the low 10 rating for the new paint in two coats to the 50–70 in three coats for the least retardant rated paint.

Incidentally, the new product was introduced to the Royal Canadian Air Force for interior application in its hangars after two other retardants had failed. The United States government is also using it extensively on radar and other important enemy warning installations.

The retardant is smokeless, nonflammable and non-toxic. A combination containing newly developed resin pigments goes into action as soon as flame touches any treated surface. And they remain in action as long as that surface is exposed to flames or heat.

The first touch of fire attacking a surface on which it has been properly applied causes some of these chemicals to decompose into harmless vapor. At the same time the remainder of the chemicals begin to swell into a thin film. As the fire gets hotter, they expand or "puff" into layer after layer of spongelike insulating mats resembling cellular plastic or foam rubber. Heat of 1700 degrees causes the painted surface to form a fire-resistant mat more than an inch thick. This flame-induced chemically treated, protective mat performs two basic jobs:

1. **It stops the progress of flames and prevents burning of the surface beneath the new paint.**
2. **And of equal importance—it insulates the surface beneath**

the "puff" against the disastrous spread of heat.

As an effective fire-stopper, the new paint will withstand 1700 degree flames for up to one hour, thus allowing a longer period for escape of building occupants and arrival of fire equipment.

As an effective insulator, it holds back the spread and penetration of intense heat, which intensifies fire damage by causing interior steel and metal structures to soften, bend and collapse.

First public demonstration was in White Plains, N. Y., in October of last year, for two-score building commissioners, safety engineers and fire department chiefs. A model basement was constructed and the joists and flooring were treated with the new paint. It was fired under supervision of a testing engineer. The treated woodwork emerged basically unscathed. This test resulted in approval throughout most of New York State as a means of compliance for certain multiple dwelling violations.

The second demonstration was at Pimlico Racetrack, near Baltimore, at the invitation of the chairman of the Maryland Racing Commission. In late October fire destroyed two stables at Marlboro Racetrack, killing 28 valuable race horses. Two one-quarter scale double stables were built at the track, with only one side of one of the stables treated with the new paint. Both stables were fired under direction of engineers from U. S. Testing Laboratories, Inc., Hoboken, N. J., on November 7, before 75 Maryland dignitaries, including racing commissioners, officials of the Thoroughbred Racing Association Protective Bureau, fire department chiefs and newspapermen. The treated section of the one stable withstood the rigors of 1700 degree flames from blazing bales of hay and other material pertinent to a racing stable, while the untreated building was destroyed.

Next, two 45' x 25' wooden barracks at Otis Air Force Base on Cape Cod, Mass., were ignited on January 15 before more than 100 military, government and other officials, as well as a corps of newspapermen and cameramen.

The twin fires raged for 30 minutes to provide the most spectacular test of the fire-stopping, heat-insulating qualities of this new retardant. This test also was conducted and controlled by engineers of the U. S. Testing Laboratories, under supervision of the Otis Air Force Base fire department.

Interior wall, floor and ceiling surfaces of one of the barracks properly treated proved impervious to the 30-minute onslaught of flames. The second barracks, which was untreated, was consumed by the flames.

Detailed inspection of the treated barracks revealed to fire prevention experts how the new paint acts as a barrier against flame and heat spread. They found the painted surfaces coated with a thick black mat which prevented the flames from reaching the studs, joists, beams and other flammable materials. When this coating was removed, the under surfaces were found to be in good condition and, with normal preparation, ready for repainting. A check of temperature recording instruments showed that passage of heat through interior walls coated with the fire retardant paint was negligible, despite exposure to the hottest flames.

Safety engineers and other fire experts expressed complete satisfaction with the demonstration. Several indicated they would take immediate steps to have the new specifications included in the building codes of their respective municipalities as an economical, effective fire retardant.

While the paints can be easily applied by brush, roller or spray methods, applicator companies are supervised to insure the highest possible continuous standards of workmanship in accordance with technical specifications.

A source for further information about the new fire-retardant paint can be obtained upon inquiry to the Editor.

NFPA Names Winners

(from page 45)

property from fire. The Association's membership is drawn principally from U. S. and Canadian business and industry, fire departments, and governmental officials throughout North America.

There were six additional grand award winners in other divisions of the contest, which has been sponsored annually for 32 years by the National Fire Protection Association:

Industry—Ford Motor Company's M-E-L Division plant in Pico-Rivera, Cal.

Government—General Services Administration Region 3, Washington, D.C.

U. S. Army—Fort Ord, Cal.

U. S. Air Force—Wright-Patterson Air Force Base, Ohio.

U. S. Navy—Naval Ammunition Depot, Hingham, Mass.

Department of National Defence, Canada—HMC Dockyard Esquimalt, British Columbia.

Northwestern Holds Naval Safety Course

The first Navy motor vehicle and traffic safety course, held February 2–20 at the Traffic Institute of Northwestern University, Evanston, Illinois, consisted of a three-week, 100-hour training program for Naval officers and civilian personnel who have traffic safety responsibilities in shore establishments in the Continental United States.

In announcing the course, Ray Ashworth, Traffic Institute director, said: "We are pleased to be able to provide this traffic training for the Department of the Navy. It has been our privilege to offer similar courses for the Army since 1946 and for the Air Force since 1955. We believe that the traffic safety program of the Department of Defense will be materially strengthened when the graduates of this first Navy course return to their duties."

Commenting for the Navy, Captain H. L. Mathews (CEC) USN, director, Safety Division, Office of Industrial Relations, said: "The professional traffic training Naval personnel receive at the Traffic Institute fills a great need in the Navy's over-all accident prevention program. We will watch with great interest the efforts of personnel who attend this first course in motor vehicle and traffic safety."

Purposes of the course, according to Gerald O'Connell, Institute director of training, were to:

1. Provide for the most effiective use of available facilities to improve traffic operations.

2. Integrate traffic control into a sound operational program on a planned and normal continuing basis, rather than on emergency or incidental basis.

3. Provide latest civilian information and practices proven most satisfactory in the control of traffic through accident investigation, analysis of data, control of drivers by licensing, engineering, education, enforcement, and coordination of effort which may be adopted to effect a reduction in accidents.

4. Provide knowledge to enable students to identify weaknesses in a traffic control program in order that they may, through channels, apply more desirable programs and techniques to overcome such weaknesses.

5. Enable students to see how accident causes are due to many factors and that prevention of accidents and continued reduction of accident rates over an extended time can be accomplished by application of a balanced safety program coordinated at all levels of command.

6. Broaden the students' knowledge of traffic control in terms of "management" of all phases of regulation and action program.

7. Provide civilian traffic control knowledge taught by civilian instructors and to expand and implement the students' knowledge and application of regulations having to do with motor vehicle traffic.

Ultimate goals of the Navy training, Mr. O'Connell said, are the reduction of losses from motor vehicle accidents (manpower, time, property, services) both on- and off-duty, and reduction of direct and indirect costs of congestion and delays (manpower and equipment tied up, confusion, frustration, and lowering of morale).

BRI 8th Annual Meeting

The BRI 8th Annual Meeting will be one of the most outstanding in the history of the organization.

A program on Sealants for Curtain Walls is being developed and subject matter will consist of: 1) reports on new types of sealers; 2) testing of curtain walls for weather resistance, April 6–8, Pittsburgh.

A half-day technical session on mechanical fasteners in building will be presented. The program is under development by a committee headed by Wm. R. Wyckoff, Product Manager, Townsend Company.

The BRI Building Owners and Managers Study Group is preparing a double-header session on Selection and Maintenance of Windows. Chairman of this group is Howard Phillips, Building Engineer, American Telephone & Telegraph Co.

In the Research Directors Forum research directors of a half-dozen of the leading building products manufacturers in the country will talk about their plans for research and development on new products during the 1960's, for use in the buildings of the '70's. This will be a real look into the future of building products and materials by the top men from such companies as United States Steel, Pittsburgh Plate Glass, Koppers Co., Westinghouse, Alcoa, and others.

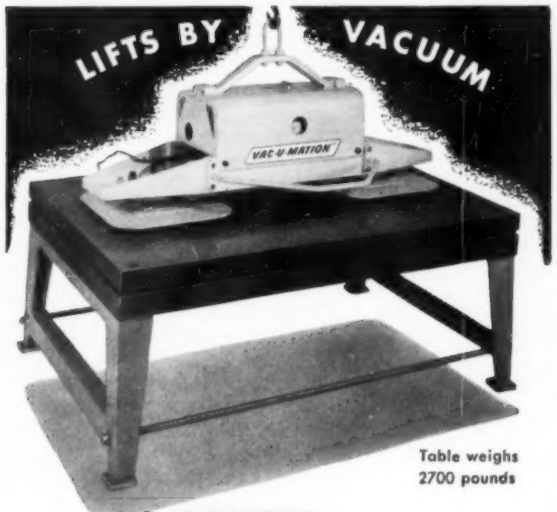


Table weighs 2700 pounds

with SAFETY and ECONOMY

VAC-U-MATION SHEET LIFTERS shorten man-hours, cut handling costs, pay for themselves F-A-S-T. Models available from manually-operated units to completely automatic models with capacities for handling up to 2,000 lbs.

Write for NEW Catalog!

4582

VAC-U-MATION DIVISION
4187 Ravenswood Avenue, Chicago 13, Ill.
District Offices: Detroit and Cleveland

(For details, use Key # C-20 on card on page 1)

GETS-A-LITE GUARD and GUIDE
Quickly and Easily Installed by Anyone — No Tools Needed!

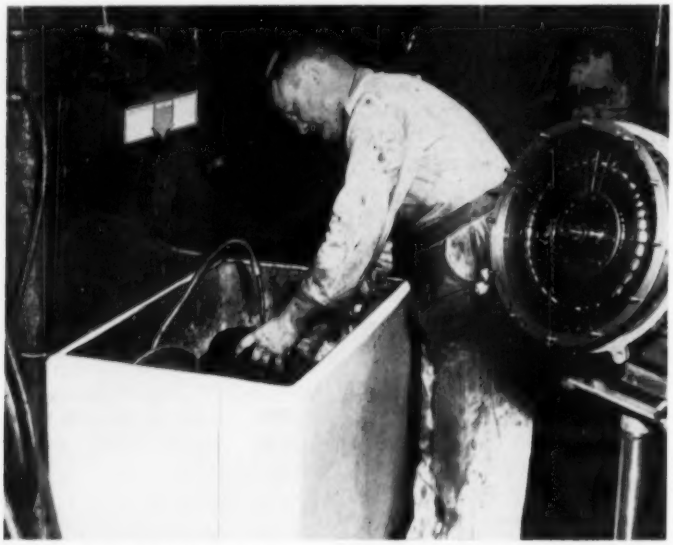
- Simply slip GETS-A-LITE GUARD AND GUIDE over the fixture, as illustrated.
- Made of indestructible spring steel wire. Nothing to break, get out of order or replace. Will last indefinitely.
- Once installed, GETS-A-LITE GUARD AND GUIDE is NEVER removed.
- Nothing to unlock, fuss with or lock, when changing lamps.
- GETS-A-LITE GUARD AND GUIDE actually steers lamp into socket, enabling maintenance man to change lamp in 10 seconds!
- Available for 40 watt and 100 watt fluorescent lamps.

GETS-A-LITE Company—Dept. SM-39
3865 N. Milwaukee Ave., Chicago 41, Illinois

(For details, use Key # C-21 on card on page 1)

INSTALLATIONS & APPLICATIONS

News From Manufacturers



Parts Cleaning Machine

The "on-the-job" photo shows a Kleer-Flo Cleanmaster at work in the Malkerson Oldsmobile Service Department in Minneapolis, Minnesota. Manufactured by Practical Manufacturing Company, these cleaners are used for the critical cleaning of automatic transmissions, differentials, and power steering units.

Shops who have long used such equipment for cleaning such parts as oil filters, air filters, carburetors, fuel pumps, starters, generators and a host of other parts, have found that the use of this same equipment shortens considerably the time required to overhaul an automatic transmission or power steering unit with their multitudinous number of parts and their critical cleaning requirements.

Using a special degreasing-cleaning compound, which is fast drying and leaves no film, the Kleer-Flo unit cleans through a continuous flow hose, air agitated soaking tank, and super power jet air gun.

Pressure-Sensitive Tape Uses

Uses of pressure sensitive tape which save material, time and money; increase plant efficiency; step up production; and improve the product or increase product sales appeal are eligible to win one of 135 prizes in a contest announced by Minnesota Mining and Manufacturing Co.

Called Tape-O-Rama, the contest—running through June 30, 1959—is designed to emphasize use of industrial tape and taping equipment in all phases of industrial production and distribution. First prizes are complete Westinghouse kitchens.

Entrants will be from among the millions of men and women who daily have an opportunity to improve their work, expedite production and contribute to greater plant efficiency with "Scotch" brand pressure-sensitive tapes—whether in the office or along the production line.

An example of a good contest entry is that of a Detroit firm which recently came upon the idea of using filament tape and small strips of corrugated paper to eliminate shipping damage—and consequent costs—to galvanized steel window frames.

Any employee of an industrial manufacturing firm may submit reports of as many of his own tape-use ideas as have been initiated by his firm during the contest period. Photographs and drawings may be used to help illustrate the idea being submitted, but they are not required. Prizes will be awarded on the basis of the entry's value as a means of cost saving, increasing profits, improving the product or other significant contributions to the department, the plant and the industry of which the plant is a part.

Each of the five first prize Westinghouse kitchens include a refrigerator, home freezer, electric range, portable dishwasher, laundromat, clothes dryer, appliance center, waffle-grill combination, electric fry pan and cover, portable mixer and coffee maker. An installation fee of up to $300 is included in the first five prizes.

The other 130 prizes are: 25 second prizes—a choice of refrigerator, range or laundromat; 20 third prizes—a choice of portable dishwasher or clothes dryer; 25 fourth prizes—portable television set; 30 fifth prizes—transistor radio; and 30 sixth prizes—choice of electric blanket or portable mixer.

Contest entries must be received on or before June 30, 1959. All entries become the property of Minnesota Mining and Manufacturing Company and none will be returned. The company assumes no responsibility for ideas or suggestions submitted by a contestant, and reserves the right to use and promote any of them. Winners will be notified on or before September 1, 1959.

Entry blanks and complete details of the Tape-O-Rama contest can be obtained from any "Scotch" brand tape distributor or 3M sales representative; or by writing to: Tape-O-Rama contest, Minnesota Mining and Manufacturing Company, Dept. T8-406, 900 Bush Street, St. Paul 6, Minn.

inside the trade

THE SAFETY VETERAN

The dean of all safety veterans, *H. W. Beegle*, will celebrate his 93rd birthday on St. Patrick's Day.

Mr. Beegle, head of *SURTY MFG. CO.*, Chicago, is all the more remarkable by continuing his active service as an outstanding authority in the field of machine guarding.

Few men are privileged to pursue their activities at the age of 93. *"Safety Maintenance"* joins with his host of friends all over the country in offering felicitations to Mr. Beegle.

Van-Packer Co., Division of THE FLINTKOTE CO., announces the re-formation of its sales organization into an Eastern and Western District. *C. M. Montgomery* has been appointed Eastern District Sales Manager with headquarters at East Rutherford, N. J. and *W. C. Henson* the Western District Sales Manager with headquarters at Chicago Heights, Ill. Van-Packer manufactures prefabricated all-fuel residential chimneys, metal and masonry gas vents, and industrial smoke stacks.

Both men continue to report to *O. E. Collins*, General Sales Manager of the Van-Packer Co., who is also located at the Chicago Heights, Ill., office.

To meet the increasing demand for industrial prescription safety glasses, *SELLSTROM MANUFACTURING CO.*, Palatine, Illinois, has expanded its prescription laboratory facilities. The firm stated the new service would be devoted exclusively to making tempered impact resistant safety glasses ground to individual prescription.

Sellstrom's nationwide franchised distributing organization will handle the augmented Rx service, making available corrective safety lenses in modern attractive safety frames or standard industrial frames. Local service in all areas will also be supplied by factory trained sales representatives qualified to assist in meeting visual problems.

MACWHYTE WIRE ROPE CO. has announced the appointment of *William J. Anderson* as a Regional Sales Manager. Mr. Anderson was formerly direct factory representative for Macwhyte and covered the sales district of Indiana, Southern Illinois, and Kentucky. He will now headquarter in Kenosha and supervise sales in the Midwest and Eastern sales territories.

The appointment of *Paschal D. Brooks* as new Southern District Sales Manager for the *UNIVERSAL MANUFACTURING CORP.* has been announced by *B. E. Magette*, national sales manager of the company. A resident of Richmond, Virginia, Mr. Brooks will be responsible for sales and distribution of company scaffolding and materials handling equipment in the entire Southeastern States area.

Two new appointments of representatives for the *Industrial Products Division of THE PIONEER RUBBER COMPANY* of Texas, have been announced by the company's main office in Willard, Ohio. *J. Donald Burvee* will make his headquarters in Kansas City, Missouri, to serve the territory including West Missouri, Kansas, Oklahoma, South Wyoming and Colorado. *R. M. "Bob" Wilson* will represent Pioneer's industrial glove products in the Texas and New Mexico area.

Thomas O. Rees, Jr. has been appointed advertising manager of the *Mining and International Group of MINE SAFETY APPLIANCES CO.*, an outstanding producer of safety equipment. Mr. Rees will be in charge of all advertising, sales promotion and product publicity for the Mining and International Group. *Chester H. Sanderson* continues as advertising manager of the firm's Industrial Group.

R. D. WERNER CO., INC., manufacturer of aluminum ladders, staging, etc., has announced that *Arthur W.*

FOILLE

FIRST AID SPRAY *FOR BURNS*

FOILLE — the antiseptic, analgesic dressing — is indicated for fast, effective relief of pain from burns, sunburn, cuts, wounds and abrasions. Areas can be sprayed thoroughly to provide prompt patient comfort and eliminate painful swabbing. FOILLE fights infection and promotes healing. In 3 oz. and 10 oz. spray.

CARBISULPHOIL CO., DALLAS, TEXAS

ORDER NOW from your supplier

(Use Key # C-22 on Inquiry Card on page 1)

BEAT THE HEAT!
ORDER HAV-ALIFT NOW!

It's common knowledge that excessive perspiration causes loss of body salts which in turn slows down the normal body processes. This causes workers to lose pep and energy and production decreases.

To restore this lost salt, install Hav-aLift Salt Tablets in disposable dispensers. Hav-aLift is the most effective and economical method of replacing Salt and they dissolve evenly over a regulated period thus eliminating nausea and the bitter salt taste.

Write today for descriptive literature and the name and address of the dealer nearest you!

A. E. HALPERIN CO., Inc.

BOSTON 18, MASS.

(Use Key # C-23 on Inquiry Card on page 1)

THE POSITIVE
LADDER SAFETY DEVICE
LOCKS-IN-A-NOTCH!

Prevents death and injuries from falling.
If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches —distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 11 years. Approved by Safety Engineers and Government Agencies throughout country. Patented. Manufactured only by

SAFETY TOWER LADDER CO.
1024 Burbank Blvd., P.O. Box 1052
BURBANK, CALIFORNIA

(Use Key # C-24 on Inquiry Card on page 1)

expecting an order?

You'll get it quicker if your postal zone number is on the order blanks, return envelopes, letterheads.

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

Sellers, General Sales Manager of the company, has been named Vice-President, Sales. Before joining the company four years ago, Mr. Sellers served as Eastern Sales Manager of the Appliance Division of General Mills, and as General Sales Manager for the Globe Lighting Company and the doll division of Noma Electric. In his new capacity, he will direct sales and supervise special promotions of the entire line of Werner aluminum products.

Joe L. Risinger, one of the country's foremost authorities on industrial fire protection, has been retained as a consultant by *SAFETY FIRST PRODUCTS CORP.,* fire extinguisher manufacturers. While continuing his active participation in such organizations as the American Petroleum Institute and National Safety Council, and other independent consulting, he will serve Safety First exclusively in their field.

Mr. Risinger's services will be available on request to Safety First for studies of fire protection problems in refineries and other petroleum operations, chemical plants and other industrial installations. He will also assist in the company's training program for industrial fire departments which includes a school conducted several times annually at the Elmsford headquarters and regional demonstrations by field service representatives.

Formation of the *Kidde Ultrasonic & Detection Alarms, Inc.,* a wholly owned subsidiary of *WALTER KIDDE & COMPANY, INC.,* is announced by *Paul W. Eberhardt,* vice president and general manager.

The new company is located at 9 Brighton Road, Allwood, New Jersey, and manufactures and sells photo-electric and ultrasonic burglar detection equipment formerly handled by the parent company's Ultrasonic Division as well as rate-of-rise and spot fire-detection devices formerly supplied by J. H. Scharff, Inc. The Newark, East Orange and Orange premises occupied by the Ultrasonic Division and Scharff have been vacated.

The New Haven, Cincinnati, Detroit and Los Angeles sales and service offices formerly operated by Scharff and Ultrasonic will continue to be maintained by Kidde Ultrasonic & Detection Alarms, Inc. Sales and service distributors are located in other cities.

The *Graybar Electric Company* has recently added to its nation-wide distribution list products of the *JOY MANUFACTURING COMPANY, Electrical Products Division.* These products will include electrical connectors for tools, welding equipment, electromagnets and other industrial electrical connections . . . push-button stations and precision switches . . . lighting equipment and vulcanizing presses and supplies.

Safety Appointments

G. W. Meredith has been appointed General Superintendent of Safety, for the Norfolk and Western Railway Co., replacing D. W. Naff, retired, according to an announcement by H. C. Wyatt, General Manager. Mr. Meredith's office will be located at Roanoke, Va.

Bert Wiggins, formerly Supervisor of Safety, Chesterfield Plant, National Aniline Division, Allied Chemical Corporation, joined Thomas A. Edison Industries, McGraw-Edison Company, West Orange, New Jersey, as Manager of the Safety & Health Department, effective February 1, 1959.

Mr. Wiggins has 22 years' experience in accident prevention, including construction—paper making—chemical—industrial—insurance and airfield safety. He is a member of the American Society of Safety Engineers (Metropolitan Chapter), Veterans of Safety and National Fire Protection Association.

Alan L. Kling has been appointed Director of Loss Prevention for Olin Mathieson Chemical Corporation, Stanley de J. Osborne, president, announced. In the newly created staff position, Mr. Kling will be responsible for coordinating policies and programs relating to the safety of the corporation's personnel and the protection of its property. Reporting to him will be the managers of fire protection, insurance and safety.

Mr. Kling had been assistant safety director of American Cyanamid Company since 1953. Prior to that time he was safety director for Cyanamid's Bridgeville, Pa., plant. He is a graduate of St. Olaf College, Northfield, Minn., and was a teaching Fellow in chemistry at Massachusetts Institute of Technology.

Mr. Kling is vice president of the New York Chapter of the Society of Fire Prevention Engineers and a member of the executive committee of the New York Chapter of the American Society of Safety Engineers.

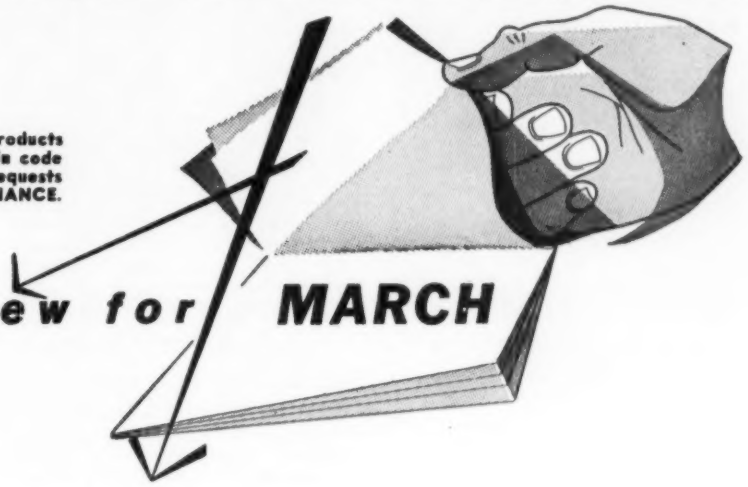
Charles W. Statkus has joined Allied Van Lines, Inc., one of the nation's leading long-distance movers, as a safety engineer. He will operate out of Allied's terminal in Broadview, Ill.

In his new capacity, Mr. Statkus will work in the field, contacting Allied member-movers in this area to conduct a special safety education program stressing driver training, inspection and maintenance of equipment. He will be equipped with a station wagon which will carry the latest safety equipment.

Mr. Statkus has been in the safety field since 1948, serving as safety engineer and district supervisor for Markel Service, Inc. He has been engaged in general safety and accident prevention work with fleet truck and bus operators.

Material appearing in this section is published as information and is not intended to imply endorsement or guarantee by SAFETY MAINTENANCE.

To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.



what's new for MARCH

FIRE FIGHTING SPHERE

(Use Key # 770 on Inquiry Card on page 1)

RESEMBLING a bright-red cannon ball, Ansul Chemical Company's new multi-purpose fire extinguisher, the "Monitor," features a unique spherical design and one-hand operation. The shape of the 2½-pound dry chemical fire extinguisher permits it to be placed in almost any location using a minimum amount of space.

Since the spent cartridge can be instantly replaced after use, uninterrupted fire protection is possible. At least one spare disposable cartridge, the company recommends, should be on hand at all times.

Each Monitor recharge is filled, pressurized and sealed during manufacture. It is said to be the only dry chemical recharge unit approved by Underwriters' Laboratories. No pressure gauge is required because the owner can determine the proper charge of gas by weighing. The cartridge remains fully charged indefinitely—provided it has never been punctured.

The Monitor's hanging bracket also serves as a locking device to avoid accidental discharge. When removed from the bracket it's all set to go. A squeeze of the trigger-grip sends a steady stream of dry chemical onto the blaze.

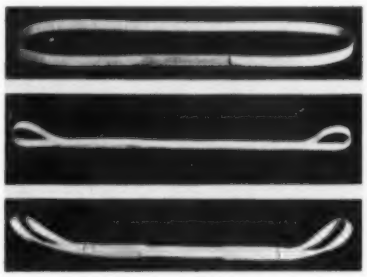
The rated effectiveness of the revolutionary extinguisher is equal to eight pump type, one quart carbon tetrachloride extinguishers. An additional feature is its uniquely high center of gravity, due to the unit's spherical design. This permits effective one-hand operation and accurate control of the extinguisher's flame killing stream. In order to achieve maximum fire fighting efficiency and still retain the design advantages of a spherical disposable cartridge, Ansul Research developed new propellant gases and a radically different formulation of its dry chemical.

Ansul also manufactures a complete line of hand portable fire extinguishers in 5, 10, 20, and 30 pound sizes, which have Coast Guard and Underwriters' Laboratories approval.

FOAM RUBBER NOSE PADS

(Use Key # 771 on Inquiry Card on page 1)

A NEW FLESH foam rubber nose pad with adhesive backing has been developed by J. I. Morris Co. for maximum comfort with all styles and sizes of safety glasses. Known as "Cushion-Rests," these pads aid in fitting glasses quickly and comfortably. With these pads applied, glasses remain snuggly in place and will not slide forward. They may also be used to relieve pressure spots, skin injuries, and sensitive noses. "Cushion-Rests" are packaged in boxes of three dozen pairs.



NYLON SLINGS

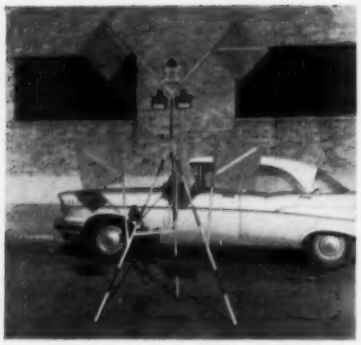
(Use Key # 772 on Inquiry Card on page 1)

THE PENNSYLVANIA Sling Co. is introducing a new type of soft sling to handle polished, painted, coated, or delicate items to avoid marring, marking, or scratching. This nylon webbing sling will be produced in three styles sewn into varying widths and lengths to accommodate every industrial requirement. To be known as the "saf-t-grip" sling, industry will welcome these strong yellow nylon slings because of their soft, easy to handle qualities. They are carefully marked with length and safe working load, and simple to inspect. Safe and economical to use, stock, and handle, all "saf-t-grip" slings have been thoroughly tested.

SLIP-ON SAFETY MOCCASIN

(Use Key # 773 on Inquiry Card on page 1)

FOOT PROTECTION plus the popular styling of the slip-on moccasin are features of the new safety shoe offered by Lehigh Safety Shoe Co. With its built-in steel toe cap to protect the foot from accidental blows and crush hazards, this shoe's style will appeal to even those employees who generally resist the wearing of safety shoes. It can be worn either as a work or off-the-job shoe, especially during the coming summer months, to protect the feet from those leisure-time accidents as well as in-plant injuries. To see what the shoe looks like, see the advertisement on the inside front cover of this issue.



TRIPOD FOR WARNING DEVICES

(Use Key # 774 on Inquiry Card on page 1)

DESIGNED FOR utility companies, highway mintenance and construction crews, etc. for use along busy streets and highways, this new "Hi-Lite Tripod" enables workers to place warning signals higher off the ground to make them more visible. The new unit, manufactured by the Emarco Corp., is rigidly constructed of heavy gauge steel tubing and finished in attention-getting black and yellow stripes. The unit comes ready to use with no parts to assemble or get lost.

The wide leg spread, over 50 inches in diameter, and the high bracing of the unit are said to assure stability even in strong winds. Five sockets accommodate ¾ inch flag staffs. A special holder at the top plus three additional hooks provide for the use of flashing neon warning lights. The flags and signals can be used independently or together to offer effective warning both in daylight and at night.

IMPREGNATED WORK GLOVES

(Use Key # 775 on Inquiry Card on page 1)

"PERMATEX" GLOVES, a new type of cotton-vinyl-impregnated, all purpose work gloves, have been developed by Advance Glove Mfg. Co. The gloves are used in inspection, in handling small parts and in other jobs where careful hand manipulation is required. The cotton vinyl-impregnated material is permanently flexible, liquid-repellent, completely odorless and fully washable. This material allows the hand to "breathe," providing additional comfort. Combining durability, dexterity, protection and wearing comfort, "Permatex" gloves are designed in an attractive slip-on style and are available in men's and ladies' sizes. They are also available in safety canary-yellow.

NEW ALUMINUM LADDERS

(Use Key # 776 on Inquiry Card on page 1)

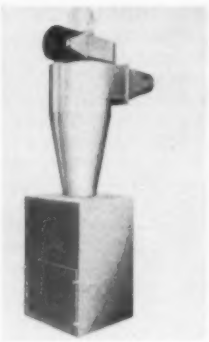
THE GOSHEN Mfg. Co. is now producing a complete line of industrial type aluminum ladders. One of the models, the new 16-inch, "Lo-Boy" ladder, is particularly designed for low-level jobs where ease in handling, speed in operation and limited space storgae must be considered.

The ladder is said to incorporate these new features: plastic covered "no-scuff" bumpers, "U"-channel type side rails, large 1 3/16" no-turn rungs, automatic spring-operated safety locks and light weight, only twenty pounds.

NEW DUST COLLECTOR

(Use Key # 777 on Inquiry Card on page 1)

A NEW, HIGH-efficiency cyclone separator, operating in the 2,000-3,000 cfm range, has been introduced by Torit Mfg. Co. Designated Model No. 24, the new cyclone is designed to handle large volumes of bulky dust. Its new self-cleaning radial fan design is claimed to give high performance at low horsepower requirements. The 24 FM model is designed for outside exhaust. When it is desired to save heat and recirculate cleaned air, FB models equipped with cloth after-filter bags

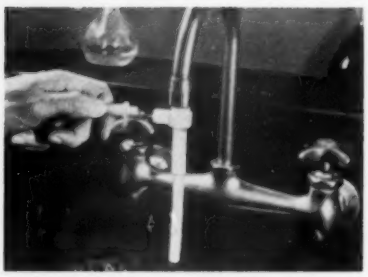


are also available. Other design features include "high efficiency" long tapering cone design, high inlet velocities and location of the fan on the clean air side of the system to eliminate possible fan damage from heavy material being separated. Operated by a 7½ horsepower motor, the unit has a 10-inch inlet and 12-inch outlet. The standard series 24 base contains a convenient pull-out drawer with 9 cubic feet storage capacity. Extra large storage bases are available in any size, built to order.

POLYETHYLENE ASPIRATOR PUMP

(Use Key # 778 on Inquiry Card on page 1)

FOR SAFE, corrosion-free lab operations, polyethylene has many advantages. Latest addition to the polyethylene line of Fisher Scientific Equipment Co. laboratory equipment is the new "Non-Corrode" aspirator pump. The new pump operates efficiently on all water pressures from 11 pounds up. The polyethylene aspirator is especially useful with highly corrosive filtrates. You can even use it as a vacuum



suction tool to draw up spilled acids, automatically diluting the acid with the water that operates the pump. The pump is also suitable for urea nitrogen tests employing the aeration method, and for cleaning pipets and sedimentation tubes.

One noteworthy design feature of the new "Non-Corrode" is that its check valve, of gum rubber, is integral—not a separate part of the pump. Another feature is that the serrated hose connection on the side-arm is removable for quick disconnecting of the filter flask. Simply pull out the hose connector. (When ready to reconnect the flask, just plug the connector back in.)

NEW FACE SHIELD

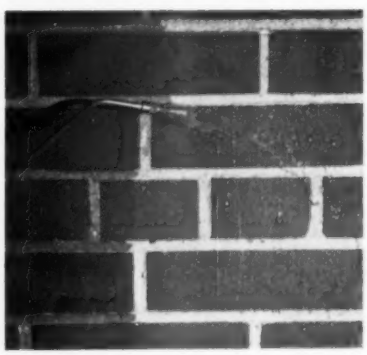
(Use Key # 779 on Inquiry Card on page 1)

WELSH "TROJAN" face shield is designed to fit everyone comfortably. New polyethylene headgear has simple ratchet adjustment—is easily adjusted to desired head size by simply pressing and turning small knob at rear. Headgear automatically locks to size when knob is released. Top band adjusts quickly and easily to head shape with pin lock. Clear or green acetate windows, in 4", 6" or 8" lengths, and in .020 and .040 thickness, are easily installed on wide fibre spark guard with three positive snap fasteners. Manufactured by Welsh Mfg. Co.

WATER REPELLENT

(Use Key # 780 on Inquiry Card on page 1)

A NEW WATER repellent for masonry, that can be diluted with plain mineral spirits, is available from Dow Corning Corp. Identified as "770 Water Repellent," it is clear as water, and is as effective on mortar as it is on brick, concrete or other masonry. It is expected that the new water repellent will last over five years. The chemical is dilutible in common solvents. As shipped (33% solids), its color is less than 120 on the APHA Scale (ASTM D1209-54). At 10% solids its color is less than 50.



NEW DRY POWDER EXTINGUISHER

(Use Key # 781 on Inquiry Card on page 1)

THE UNITED STATES Coast Guard has just issued approval for a new portable, dry chemical fire extinguisher for boats, the "Protexall Deluxe" manufactured by American LaFrance. Occupying 15 by 4 inches of space, its non-toxic dry chemical has the fire-killing power of four one-quart carbon tetrachloride or chlorobromethane units. Already approved by Underwriters' Laboratories, it will snuff out fires caused by: short circuits in electrical wiring, spilled gasoline, malfunctioning cooking stoves, spontaneous combustion in storgae areas, etc. The new unit can be used effectively at a considerable distance (8 to 10 feet) and does not give off poisonous fumes or gases or form a foam or liquid.

Finished in durable enamel in coppertone color, the extinguisher requires no recharging or other attention unless used. It employs a chemically-treated dry powder that

is impervious to moisture. When the extinguisher's handles are squeezed together, powder spurts forth in a stream expelled by a force of 150 pounds of compressed air. The extinguisher's fire-killing powder is harmless to people, pets, and food. Powder is easilly cleaned with a damp cloth. Pictorial instructions on the nameplate facilitate quick use in an emergency.

TREATED LEATHER WORK SHOES

(Use Key # 782 on Inquiry Card on page 1)

NEW WATERTIGHT construction work shoes and boots with vulcanized soles and "Sylflex" silicone treated upper leathers have been introduced by the Cedar-Crest Shoe Co., Div. of General Shoe Corp. Nationally marketed, they include a six-inch shoe and an eight-inch boot, especially designed for working in wet conditions. Both styles have soles vulcanized directly to treated upper leather and self-vulcanizing sealed seams.

The vulcanizing process, developed by C. & J. Clarke, Ltd., with "Sylflex" a special silicone made by Dow Corning Corp., is applied to leather at the tannery. The silicones surround individual fibers in the leather to prevent water from penetrating, yet do not clog the pores so that air can circulate freely. Its water repellency makes leather stay soft and flexible, without stiffening, cracking or curling after repeated wetting.

NEW "MERCY" DRESSING

(Use Key # 783 on Inquiry Card on page 1)

TELFA PAD, a new principle of wound dressing by Kendall Co., is available to users of the unit system in MSco units of 1-inch plastic adhesive bandages and 2-, 3-, and 4-inch bandage compresses, reports Medical Supply Co. Called the mercy dressing because it does not hurt when you take it off a wound, "Telfa Pad" is an entirely new type nonadherent dressing that consists of a nonwettable, perforated plastic film firmly bonded to a highly absorbent material.

Wound drainage is absorbed through perforations in the plastic film by the pumping action of the absorbent backing. It allows the wound to drain, but does not stick to the scab. Thus, it prevents damage to and scarring of the healing skin tissue and speeds wound recovery.

GUIDE PIN COVER

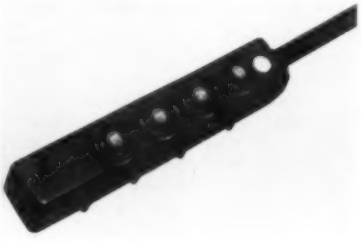
(Use Key # 784 on Inquiry Card on page 1)

THE PROBLEM of harmonizing protective covers with equipment designs where exposed shafts, hydraulic shafts and lubrication must be guarded against dirt and grit can now be overcome through the use of new "Elasticone Covers" available in attractive metallic finishes. These covers are spirally wound flat ribbon steel cones that snap into place . . . covering the exposed area while still allowing full motion in any direction. "Elasticones" are now available in chrome, copper or stainless steel finishes that can be used in equipment such as lift trucks, swivel chairs, electronic computers, hydraulic jacks, hydraulic shovels and others.

NEOPRENE-ENCLOSED PUSH BUTTON STATION

(Use Key # 785 on Inquiry Card on page 1)

A NEW PUSH button station with neoprene housing which features waterproof, non-corrosive, light-weight construction has been announced by the Electrical Products Div. of the Joy Mfg. Co. The "Joy Push Button Station" is available in either 3 or 4 button models. The 2-piece neoprene housing weighs only a fraction of any conventional cast iron unit, is about ⅓ the size, and offers completely waterproof, rustproof and corrosion-proof construction. Special grommets are supplied with each unit to fit several cable sizes and assure weather-tightness. A specially designed ring-shroud protects each button from accidental action from any lateral direction. The interior of the unit is designed for easy wiring of the precision switches to the chosen cable. Applications include hoist and crane operations, suspension above heavy factory machinery, and any other area where light, non-bulky, weather-tight pendant-type stations are desirable.



LEAD VINYL FOR RADIATION PROTECTION

(Use Key # 786 on Inquiry Card on page 1)

A NEW TYPE of shielding material for protection against x-radiation, made of lead vinyl, is introduced by Bar-Ray Products, Inc. This new product, marketed under the trade name of "Leadex" is considerably lighter in weight than conventional lead rubber and has a sanitary, non-absorbing smooth surface. It offers thorough protection in any lead equivalent. The standard thicknesses have .25mm, .5mm and 1.00mm lead equivalent.

"Leadex" has been subjected to massive radiation from 100,000/r to 1,000,000/r with no physical change. Tests under extremes of freezing and heating show no appreciable changes. It is available in sheeting for special applications, including curtains for dividing rooms.

RIPPLE SOLED SHOES

(Use Key # 787 on Inquiry Card on page 1)

THREE RIPPLE sole "Nok-A-Bouts" have been added to the line of Hy-Test safety shoes designed for on or off the job wear. Included in this trio are two oxfords, one brown, the other black, and a black chukka shoe. All contain "Durisco" mil dew-proof linings, dacron stitching, and a patented anchor flange steel box toe. Both oxfords are made on the "Crescent" last while the chukka shoe is made over the "Director" last. Available from Hy-Test Safety Shoes, Div. of International Shoe Co.

HEAT RESISTANT CLOTHING

(Use Key # 788 on Inquiry Card on page 1)

A NEW LINE of aluminized flame-proofed rayon protective garments is announced by Wheeler Protective Apparel, Inc. This new series, known as Wheelers "70" line, was developed to provide greater strength, higher resistance to radiant heat, and stability under flexing, with excellent retention of its aluminized finish. It is said to be almost six times as strong as aluminized duck and will support no combustion. It is also more dependable when exposed to radiant heat. The garments included in the "70" line will feature a complete range of sizes and lengths of coats, aprons and sleeves, as well as pants, leggings, hats, hoods, bibs, spats, shoe covers, overshoes, blankets, cuffs, gloves, caps and helmets. According to the manfacturer, the flame-proofed rayon lends itself extremely well to the aluminized finish. Garments made from it are said to be soft, pliable and quite comfortable to wear for extended periods.

PORTABLE COT WITH CHAIR-BACK FEATURE

(Use Key # 789 on Inquiry Card on page 1)

THE FERNO Mfg. Co. has announced its newest development in the hospital and emergency equipment field. Called the "Stretch'R-Chair," the new product is an 8 positioning, lightweight emergency cot. Designed for easy maneuvering through narrow corridors and up steep stairways, the cot weighs only 30 pounds and it has an adjustable chair-back to allow patients to sit up in the ambulance, etc. The new stretcher rolls on two ball-bearing wheels, has telescopic handles which shorten to 59" and folds flat for compact storage to 4½" x 21½" x 41". The new cot is constructed of aluminum and leatherette covered plastifoam

POWERED STEAM CLEANER

(Use Key # 790 on Inquiry Card on page 1)

ANYONE FACED with the problem of cleaning or sanitizing in confined areas where fumes, smoke, flame, or excess water would be objectionable or hazardous, will be interested in the new all-electric Model E-350, "Hypressure Jenny" announced by Homestead Valve Mfg. Co. This new electrically powered and heated steam cleaner is said to be suitable for the average light to medium duty cleaning job, and for "Jenolizing"—the new process that prevents flash rusting of machinery or equipment, and imparts a like-new gloss to painted surfaces. Its relatively low water output, quiet operation, and freedom from fumes and flames permit the use of the "E-350" practically anywhere.

Ninety seconds after pressing the motor switch, turning on the heaters, and setting the solution metering valve for the desired concentration of cleaning solution, the "E-350" is ready to clean. It is protected against damage or improper operation by automatic shut-off of heaters in case of water supply failure; light to show when heaters are on; hose protector plug to prevent damage from superheated steam; and valve to release excess pressures automatically if line restrictions occur.

GRINDING WHEEL DRESSER

(Use Key # 791 on Inquiry Card on page 1)

A MODERN grinding wheel dresser which runs on resilient bushing and will shape and sharpen wheel and discs from ¼ inch to 20 inches in diameter has been introduced by the Thompson Sales Co. Only a slight pressure is needed to operate this new unit. Worn cutters can be replaced quickly and easily as they are a combination unit with no loose blades. Extra cutters are also available.

IMPROVED EARPHONE

(Use Key # 792 on Inquiry Card on page 1)

WILLSON PRODUCTS has announced an improved type of earphone particularly useful in noisy industrial applications and in flight communication systems. The Willson No. 260 "Sound Barrier" consists of a speaker boom and earphones built into ear-muff type hearing protectors, the entire unit fitting on the head to allow freedom of both hands. In addition, noises are deadened, allowing quiet communication and more audible transmission.

PORTABLE RESUSCITATION-SUCTION KIT

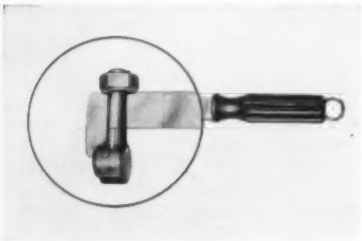
(Use Key # 793 on Inquiry Card on page 1)

THE NEW AMBU portable resuscitation-suction kit is being marketed by Air-Shields, Inc. The resuscitation kit comprises a hand operated resuscitator and a foot operated suction pump with a sturdy carrying case. Compact, light and easily carried, the AMBU equipment requires no electricity, compressed gas or time-wasting set-up. The resuscitator includes an anesthesia type breathing bag with a special foam rubber lining which inflates the bag, a non-rebreathing valve, face mask and three Berman airways of different sizes. The suction pump is comprised of a foot-operated accordion bellows (activated by a strong stainless steel spring), a plastic trap bottle with a spare overflow valve in the stoppper.

WIRE SKINNING KNIFE

(Use Key # 794 on Inquiry Card on page 1)

A SKINNING knife to cut, peel, and strip off neoprene and polyethylene coatings from wire and cable has just been announced by Miller Equipment Co., Inc. Designed also to handle aluminum conductors 2/0 to 4/0 flat service wire, the knife is adjustable to avoid cutting and nicking the wire, and reduces skinning



time by 80 to 90%. It works equally well for both center splices and conductor ends. Knife blade is shielded to protect hands. After splitting insulation, the outside guide will slip under insulation and peel or roll off the material with a twist of the wrist. Known as the No. 74 "Poly-knife," it can also be used as a regular skinning knife.

HAZARD WARNING LIGHT STAND

(Use Key # 795 on Inquiry Card on page 1)

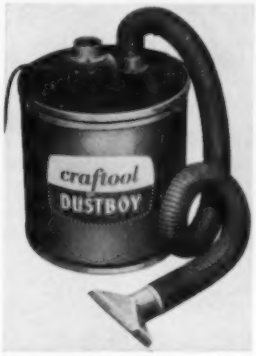
DESIGNED TO hold torches or flashers, this new hazard warning stand can be used in place of barricades, especially where space is restricted, and to elevate lights or torches along the approach path to a hazard. Stands with lights can be arranged in series to provide emergency

or temporary barricades. The top platform unit will accommodate either torches or flashers for night-time or inclement-weather warning. The stand also features a warning shield for daylight warning; the diagonal-striped shield is 12" wide, 20" high. The stand, 38½" inches in height, is finished in beacon yellow and black. The circular base, 24 inches in diameter, has a wide-angle "pie-cut" to facilitate stacking. Stand weighs 20 pounds. From the Hazard Warning Lighting Div., R. E. Dietz Co.

NEOPRENE NON-SLIP GLOVE

(Use Key # 796 on Inquiry Card on page 1)

A ROUGHENED finish cured into its coating compound gives this "Super Neox" work glove a positive wet or dry grip not previously available in neoprene gloves. Much greater resistance to solvents as well as cutting and abrasion is obtained by the use of reinforced neoprene. Glove life is further extended by a new process which applies a thicker coating on the palm area than on the back. The glove retains good flexibility and its wing thumb, preflexed finger pattern makes it easy and comfortable to wear. Available in fully coated knitwrist and gauntlet styles, and in palm coated knitwrist from the Edmont Mfg. Co.



DEBRIS AND DIRT VACUUM

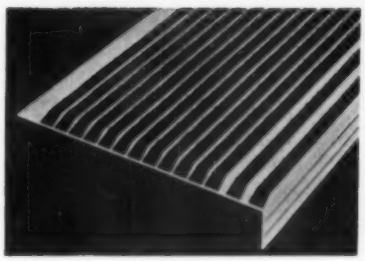
(Use Key # 797 on Inquiry Card on page 1)

CRAFTOOLS, INC. introduces the new "Dust Boy." A powerful (½HP) shop-vacuum and dust collector, it is equipped with a 14 gallon drum, small enough to be extremely portable, but with a large capacity for those wood chips, sawdust and rough dirt found in shops, garages, etc. Supplied with a 2½" diameter hose (twice the size of the average vacuum hose) which will not clog on the rough refuse, it is designed so that debris falls directly into drum, by-passing the motor. Fittings are heavy plastic, tapered for quick attachment. The unit is supplied with an adapter to take any standard 1½" vacuum hose.

PLASTIC UTILITY BOTTLE

(Use Key # 798 on Inquiry Card on page 1)

A NEW COST-reducing, one-gallon plastic utility bottle has been added to the industrial line of Plax Corp. The new unit, square in the cross section with generously rounded corners, is available in both conventional and high density polyethylene. The high density container is approximately one-fifteenth the weight of an equivalent glass container, while the conventional polyethylene bottle is about one-eleventh the normal weight. This, combined with a 37 percent reduction in cubage over the traditional round shape, makes possible substantial savings in freight and corrugated shipping carton costs. The bottle is designed for use with bulk liquids, such as chemicals, drugs, flavorants and detergents. Both GCMI and buttress finishes are available.

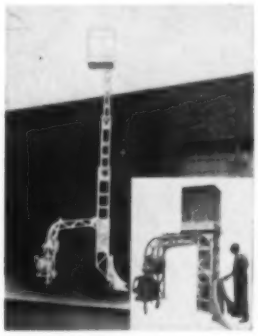


SLIP-PROOF ALUMINUM TREADS

(Use Key # 799 on Inquiry Card on page 1)

A NEW "Traffic-Flow" design for their heavy-duty aluminum safety treads has been announced by Wooster Products, Inc. The new slip-proof design has a flat abrasive surface that provides a "magnetic-like" feeling when the foot touches each step, the manufacturer states. A special abrasive formula bonded in a heavy-duty aluminum base gives the "Super STAIR-MASTER" safety treads a sure-grip quality to prevent slipping and tripping on heavy-traffic stairs.

The new treads are attractively designed to meet the needs of department stores and hotels, but are ruggedly built for industrial use and have passed oil and grease tests more severe than those encountered in factories and packing plants. The treads are 9" wide with beveled backs and fit all steps up to 13" wide. Lengths to 12 feet. A deep 1⅛" nose extends over the edge to protect the face. Easily fastened to wood with screws or to masonry with screws and expansion shields. Factory delivery in one week.



NEW STRADDLE SCAFFOLD

(Use Key # 800 on Inquiry Card on page 1)

ATLAS INDUSTRIAL CORP. announces the introduction of the new "Straddle Scaffold." It is especially designed for use over desks, machinery, tables, seats, etc. This scaffold is suitable for overhead maintenance work such as painting, cleaning, relamping and repairing. The scaffold may be built to meet individual requirements as to size of work platform, and height to be reached. It comes ready for work—no loose parts, no construction required. It is of all-welded steel construction with outriggers for extra stability. The entire unit folds for easy storage.

YOUR FREE INQUIRY CARD–Page 1

Index to Advertisers and their Agencies

American Optical Co.	10	Sutherland-Abbott, Boston
Carbisulphoil Co.	61	Tracey-Locke Co., Inc., Dallas
Cover, H. S.	9	MacDonald-Cook Co., South Bend
Detex Watchclock Corp.	30	J. M. Kesslinger & Associates, Newark
Gets-A-Lite Co.	59	Read Brothers, Chicago
Halperin Co., Inc., A. E.	61	Richard John & Co., Boston
Hynson, Westcott & Dunning	Back Cover	
Junkin Safety Appliance Co.	53	Farson, Huff & Northlich, Louisville
Legge Co., Inc., Walter G.	55	J. M. Kesslinger & Associates, Newark
Lehigh Safety Shoe Co.	Inside Front Cover	Frederick-Clinton Agency, New York
Littell Machine Co., F. J.	59	Vernon S. Weiler, Chicago
Masury-Young Co.	29	Hoag & Provandie, Inc., Boston
Meyer Machine, Inc.	43	Wm. L. Baxter Advertising, Minneapolis
Monroe Co., Inc.	9	Griswold-Eshleman Co., Cleveland
Osborn Mfg. Co.	57	
Pittsburgh Plate Glass Co.	19	Mazon, Inc.
Practical Mfg. Co.	48	Fischbein Advertising Agency, Minneapolis
Quabaug Rubber Co.	23	
Rose Mfg. Co.	53	Dunshee Advertising Agency, Denver
Safety Tower Ladder Co.	62	Milton Dorsey & Associates, No. Hollywood
Stonehouse Signs, Inc.	Inside Back Cover	Rippey, Henderson, Bucknum & Co., Denver
Wagner Sign Service, Inc.	25	Wendt Advertising Agency, Toledo
Watchemoket Optical Co.	5	Richard Thorndike Agency, Providence
Wilkie Optical Co.	44	
Williams Jewelry & Mfg. Co.	40	Vernon S. Weiler, Chicago

SEND THIS PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES.

- Safety is made appealling . . . vivid . . . engaging . . . colorful!
- Each worker clearly sees how safety benefits him . . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . . every month!

. . . talks the worker's language!

YOUR IMPRINT HERE!

packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

YOUR SIGNATURE HERE!

Make Your Safety News your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms; it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a deceptive rascal. His hi-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's odorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning. First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing. BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . so can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or leaky muffler. Play it safe.
1. Be sure your muffler and exhaust are in good condition. They can leak long before they become noisy!
2. Always keep a car window open, even a little, for fresh air.
AN INTIMATE LOOK AT FOUR VILLAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by resisting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but ofttimes only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

RIVETS ATTENTION WITH VIVID COLOR

Generous use of color sparks the message, and adds impact to the contents of YOUR SAFETY NEWS. Each issue is as alive as any news-stand favorite.

HOW TO ORDER:

YOUR SAFETY NEWS may be ordered with either the standard imprint or with your Own Special Imprint. The standard imprint reads "PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER."

You can personalize YOUR SAFETY NEWS with the name of your firm and the name or facsimile signature of a company representative as illustrated. Give full instructions for your Special Imprint on the order blank below:

Item (1) FIRM NAME: Please show the name of your firm exactly as it is to appear.

Item (2) INDIVIDUAL NAME OR SIGNATURE: (If Desired). On a sheet of white paper, please show, in black ink, the individual name or signature, if desired, which is to appear each month on the first page of YOUR SAFETY NEWS.

NOTE: Although a personal signature is effective, some firms substitute: SAFETY DEPARTMENT, YOUR SAFETY COMMITTEE, A SAFE WORKER, etc.

CUT OUT AND MAIL TODAY!

ALFRED M. BEST COMPANY, Inc. • 75 Fulton Street, New York 38, N. Y.

Gentlemen:

Until further advised please publish for us each month ____ copies of YOUR SAFETY NEWS at ____¢ each.

☐ **Special Imprint** ☐ **Standard Imprint**

Item (1) The Special Imprint of our company name should appear as follows: _____

Item (2) (If Desired). Please imprint the name or signature shown on the attached sheet of white paper or the following: _____

INVOICE TO:

Name _____

Firm Name _____

Address _____

City _____ **Zone** ____ **State** _____

PRICES

No. Copies Per Month	Your Special Imprint	Standard Imprint	No. Copies Per Month	Your Special Imprint	Standard Imprint
6,001 copies and over	2½¢ each	2¢ each	200 to 500 copies	5½¢ each	4½¢ each
3,001 to 6,000 copies	3¢ each	2½¢ each	100 to 199 copies	6½¢ each	5¢ each
1,001 to 3,000 copies	3½¢ each	3¢ each	25 to 99 copies	**	5½¢ each
501 to 1,000 copies	4½¢ each	4¢ each			

** 5½ each plus $3.50 per month. For Special Imprint. F.O.B. New York, N. Y.

STONEHOUSE SIGNS guard against FIRE

In every plant, large and small, fire hazards lurk in unexpected places. These hazards too often explode into the terror of a plant fire . . . destroying lives, property and jobs.

Guard against fires . . . and the losses they inevitably bring . . . with reminder signs from STONEHOUSE. Alert every man in your plant to those potential fire dangers by the use of bright, easy-to-see fire hazard warning signs. Each STONEHOUSE sign is made of enduring, tested materials, and manufactured in accordance with American Standard specifications.

✱ *Write today for our free, full-color, 64 page catalog of thousands of ready-to-ship safety signs, plus information about custom-printed signs to meet your special needs.*

"Signs since 1863"

Stonehouse SIGNS

(For details, use Key # C-25 on card on page 1)

Thantis® LOZENGES

first aid for throat irritations

SORE THROATS due to coughs and colds, if neglected, may result in lost man hours of work.

THANTIS® Lozenges contain no antibiotic; they produce no unpleasant by-reactions in the mouth.

THANTIS Lozenges relieve pain promptly—reduce infection—act prophylactically.

Twenty-seven years' extensive clinical and lay use has proved the safety and effectiveness of this popular product.

(For details, use Key # C-26 on card on page 1)

HYNSON, WESTCOTT & DUNNING, INC.

BALTIMORE 1, MARYLAND

Mercurochrome®

First aid for wounds . . . . . .

Neglect may cause infection which can be prevented by prompt use of 'Mercurochrome.'® No antiseptic has been proved to be more effective than 'Mercurochrome' for topical application.